PIONEER
The Art of Entertainment

Service Manual

ORDER NO.
RRV1407

SPEAKER SYSTEM
S-W990

- **Refer to the service manual RRV1151 for S-W99/SD.**

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model	Power Requirement	The voltage can be converted by the following method.
	S-W990		
SD	O	AC110V/120V–127V/220V/240V	With the voltage selector

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE, INC. P.O.Box 1760, Long Beach, CA 90801-1760, U.S.A.
PIONEER ELECTRONIC [EUROPE] N.V. Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 501 Orchard Road, #10-00 Lane Crawford Place, Singapore 0923

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● CONTRAST OF MISCELLANEOUS PARTS

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

1. PACKING

S-W990/SD and S-W99/SD have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		S-W99/SD	S-W990/SD	
NSP	Packing case	SHG1652	SHG1793	
	Caution card	SRR1006	SRR1007	
	Operating instructions (English/Spanish/Chinese)	SRD1130	SRD1139	

2. EXTERIOR

S-W990/SD and S-W99/SD have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		S-W99/SD	S-W990/SD	
	Top cover	SNK1641	SNK1868	
	Baffle assembly	SXB1203	SXB1239	

3. POWER AMP SECTION

S-W990/SD and S-W99/SD have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		S-W99/SD	S-W990/SD	
	Sush assembly	AMB7093	AMB7341	
	Front panel	AMB7086	AMB7328	
	Switch (LIGHT ON/OFF)	AAD7066	AAD7284	
	Switch (PHASE 0°/180°)	AAD7066	AAD7284	
	Push button (POWER)	AAD7065	AAD7285	
	Knob (LEVEL)	AAB7029	AAB7080	
	Knob (TURNOVER)	AAB7027	AAB7084	

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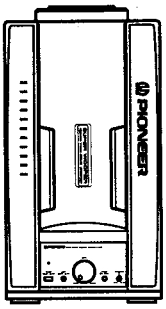

ORDER NO.

RRV1151

The chapter 1 of this Service Manual will not be reprinted. On your additional orders, we may supply only the chapter 2. For the chapter 1, please make copies and attach to the chapter 2 at your side if necessary.

SPEAKER SYSTEM

S-W99

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model	Power Requirement	The voltage can be converted by the following method.
SD	S-W99	AC110V/120—127V/220V/240V	With the voltage selector.

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PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 300 Allstate Parkway Markham, Ontario L3R 0P2 Canada
PIONEER ELECTRONIC [EUROPE] N.V. Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911

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CHAPTER 1

1.1 SPECIFICATIONS

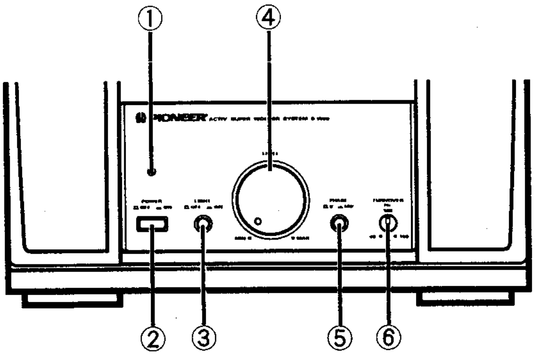
Cabinet	A floor, bass-reflex type, with a built-in amplifier, having a PVC-sheet (GRAY) finishing.
Speaker (Magnetically shielded type)	16 cm × 2
Power Amplifier	
Peak Music Power Output	300 W/8Ω
Continous Power Output (RMS)	45 W + 45 W (70 Hz, T.H.D. 10 %, 8 Ω)
Input (sensitivity at 60 Hz/impedance)	
Stereo (push terminal)	625 mV + 625 mV (both channels in-phase)/32 kΩ
Monaural (pin jack)	80 mV/50 kΩ
Turnover Frequency	40 ~ 150 Hz (continuously variable)
Outline Dimension	286 (W) × 553 (H) × 418.4 (D) mm
Weight (without package)	15.3 kg
Power Requirements	AC 110/120 – 127/220/240V (switchable), 50/60 Hz
Power Consumption	210 W
Accessories	Parallel-wire cords (2.5 m) × 2 Operating instructions × 1

NOTE:

Specifications and design subject to possible modification without notice, due to improvements.

1.2 PANEL FACILITIES

FRONT SECTION



① Power indicator

Indicator lights up when power is turned on.

② POWER switch (■ OFF, ▬ ON)

Depress this switch once to turn on power. Depressing it once more will turn power off.

③ Illumination switch (LIGHT, ■ OFF, ▬ ON)

pressing this switch once (ON) activates illumination and level meter. Renewed pressing of this switch (OFF) interrupts the circuit.

④ Subwoofer LEVEL knob

Volume of subwoofer is adjusted with this knob. Turn this knob clockwise to raise the level.

- Turn this knob starting with "MIN" and raise the volume slowly. If the unit is turned on with the volume set too high, it could cause damage to one's ears and to the speaker itself. Do not turn the volume up excessively high. The low frequency sound is apt to be raised too high since it is less disturbing and harder to detect in the high range.

  If the output of the amplifier (receiver) connected to this unit is high or if the output has a low range boosted by the Bass control, Bass boost, or other means, there may be some sound distortion even if the level of the unit is lowered. In this case, lower the output level (Volume, Bass control, Bass boost) on the amplifier (or receiver) side.

⑤ Phase changeover switch (PHASE, ■ 0°, ▬ 180°)

This switch changes over the subwoofer phase [0° (in-phase), 180° (opposite phase)] for the combination speakers. Set this switch to suit your choice of bass, according to the location of the subwoofer.

⑥ TURNOVER frequency control knob

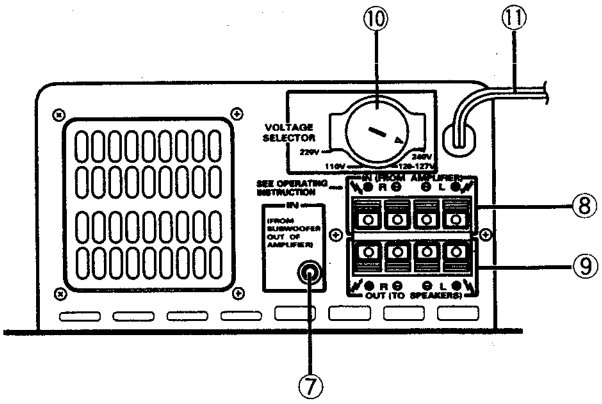
Select the position according to the woofer level of the speaker to be combined.

40 Hz ··· For large-sized speaker (woofer diameter: 8 inch or more)

100 Hz ···For middle-sized speaker (woofer diameter: 4 to 10 inch)

150 Hz ···For small-sized speaker (woofer diameter: 5 inch or less)

REAR SECTION



⑦ Subwoofer input terminal (IN) (FROM SUBWOOFER OUT OF AMPLIFIER)

Connect SUBWOOFER output terminal of the amplifier or receiver to this terminal with a commercially available pin-plug cord.

⑧ Subwoofer input terminals (IN) (FROM AMPLIFIER)

Connect the speaker output terminals of amplifier or receiver to these terminals with the accessory two parallel-wire cords.

⑨ Speaker output terminals (OUT) (TO SPEAKERS)

Connect the speaker input terminals to these terminals with the two parallel-wire cords.

⑩ VOLTAGE SELECTOR

⑪ Power cord

To an AC wall outlet or amplifier's (or receiver's) an AC OUTLET (more than 210 W).

1.3 DISASSEMBLY

● POWER AMP SECTION

1. Place S-W99 in horizontal position as shown in the fig. 1.
2. Remove the 4 screws ① and the 5 screws ②.
3. Remove the connector and the parallel jumper lead, etc.

● SPEAKER

Remove each of the 4 screws ③.

● BAFFLE ASSY

1. After having removed the POWER AMP section and the speaker, remove the 6 screws ④ from the inside of the speaker box.
2. Use a hexagon wrench and remove the 2 screws ⑤.
3. Lift up the top cover and the BAFFLE ASSY together and remove it. (The baffle plate and speaker box are fastened with 6 dowels.)

● LAMP ASSY AND LEVEL METER ASSY

1. Remove the BAFFLE ASSY.
2. The LAMP ASSY and the LEVEL METER ASSY are both fasten with 3 screws inside the BAFFLE ASSY.

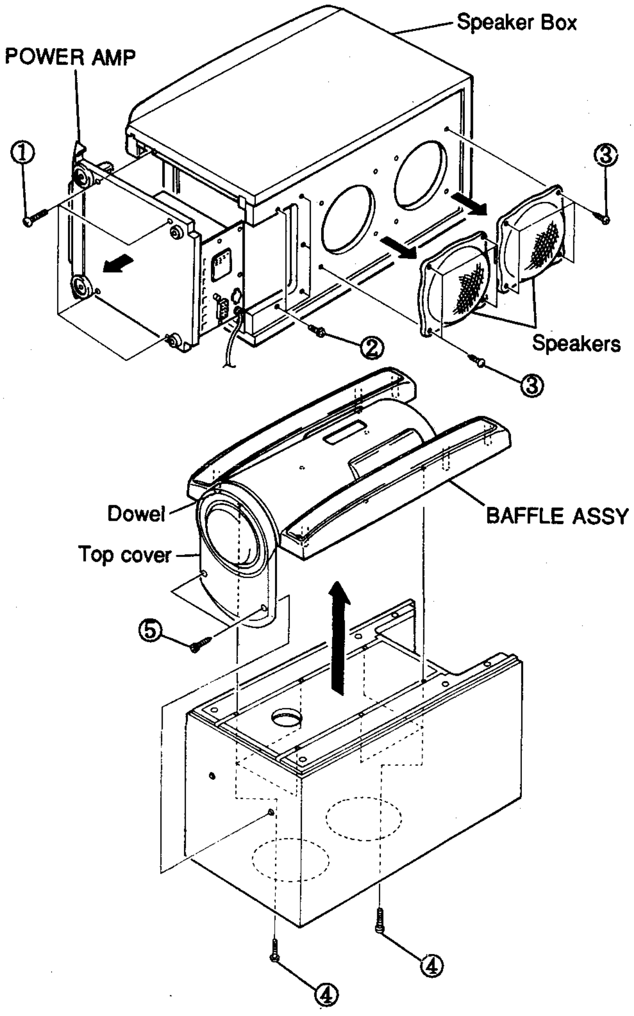


Fig. 1

1.4 ADJUSTMENTS

POWER AMP MODULE SECTION (Refer to Fig. 1.)

1. Handling Precautions

- Since the heat sink and transistor metallic parts are connected to output terminals, make sure they do not contact the GND (chassis) or other circuits.
- Since there are residual high voltage lines +B1 (FRONT ASSY FOR 50W) and ±B2 (PWR, PRTEC ASSY) even when the power is OFF, caution should be exercised. (If necessary, the voltage should be discharged.
- When handling the Power Amp Module Assy, make sure you do not touch the fan motor blade.

2. Adjustment and Confirmation of Idle Current

- Basically, the idle current needs to be confirmed when replacing a power transistor, driver transistor, or bias transistor, or when the FRONT ASSY FOR 50W or PWR, PRTEC ASSY have been replaced.
- Make sure the heat sink has cooled sufficiently before measuring the idle current. (Temperature should be the same as room temperature ; 25℃ is ideal, if possible.)
- Idle current stipulated value : 3 − 50mA.

■ Front Amp Side (FRONT ASSY FOR 50W)

Step	Measurement	Item	Remarks
1	Lch side	Insert a resistor (0.22Ω, 3W or more) in series in the connector CN7502 +B1 (or −B1) line (terminal No. 5 or 6). (Refer to Fig. 2.)	For measuring voltage at both sides of resistor.
2		Short both sides of C7524.	Do not operate Rch side.
3		Turn the power ON. wait 6 seconds, and then measure the resistance voltage in Step 1.	Lch Idle current I= V/0.22(Ω)
4	Rch side	● Same as Step 1 above. ● Short both sides of C7523.	Do not operate Lch side.
5		Turn the power ON under the above conditions, and after 6 seconds measure the resistance voltage in Step 1.	
6	———	If the measured idle current is greater than 50mA, perform the following procedure.	
7	Lch side	Short between the Point Ⓐ pattern in Fig. 3 using solder.	Connect R7517 to R7515 in a parallel circuit.
8	Rch side	Short between the Point Ⓑ pattern in Fig. 3 using solder.	Connect R7518 to R7516 in a parallel circuit.
9	———	After performing Steps 7 and 8, remeasure the idle current and confirm that it is below 50mA.	
10	———	If the idle current is below 3mA, perform the following procedure.	
11	Lch side	Short between the Point Ⓒ pattern in Fig. 3 using solder.	Connect R7551 to R7519 in a parallel circuit.
12	Rch side	Short between the Point Ⓓ pattern in Fig. 3 using solder.	Connect R7552 to R7520 in a parallel circuit.
13	———	After performing Step 11 and 12, remeasure the idle current and confirm that it is greater than 3mA (within 3 − 50mA).	

NOTE : 1. If the idle current is below 3mA, support a resistor (33kΩ) between the emitter and the Q7501 (Lch) and Q7502 (Rch) bias transistor base, and confirm that the idle current is within 3 − 50mA.

3. Adjusting the Operating Temperature Setting of the Fan Motor (VR7701)

This adjustment is necessary when IC7403 (+12V regulator), Q7301 and Q7302 (temperature sensors), which are mounted on PWR, PRTEC ASSY, or VR7701, which is mounted on PCB of FRONT ASSY FOR 50W, have been replaced.

■ Adjustment—Related Cautions

- Make sure the heat sink has sufficiently cooled (is the same as room temperature Ta.)
- Once the power has been turned ON, make measurements and adjustments as quickly as possible. (If too much time is taken, the heat sink temperature will rise, and the measurements will deviate from the Ta measurement point.)

■ Adjustment

1. Connect a voltmeter between TEMP and TP (or between IC7702 terminals No. 3 and 2). (Refer to Figs. 3 and 4.)
2. Determine the fan motor operating temperature setting by means of the following formula. (Tolerance is within ±30mV.)
   Formula: (85℃ − Ta) × 19 (mV)
   Ta : ambient temperature (℃)
3. Adjust the VR7701 so that the voltage between TEMP and TP is the value obtained from the above formula.
   For example :
   When the room temperature is 25℃,
   set value = (85 − 25) × 19 (mV)
   = 1140mV (tolerance within ±30mV).

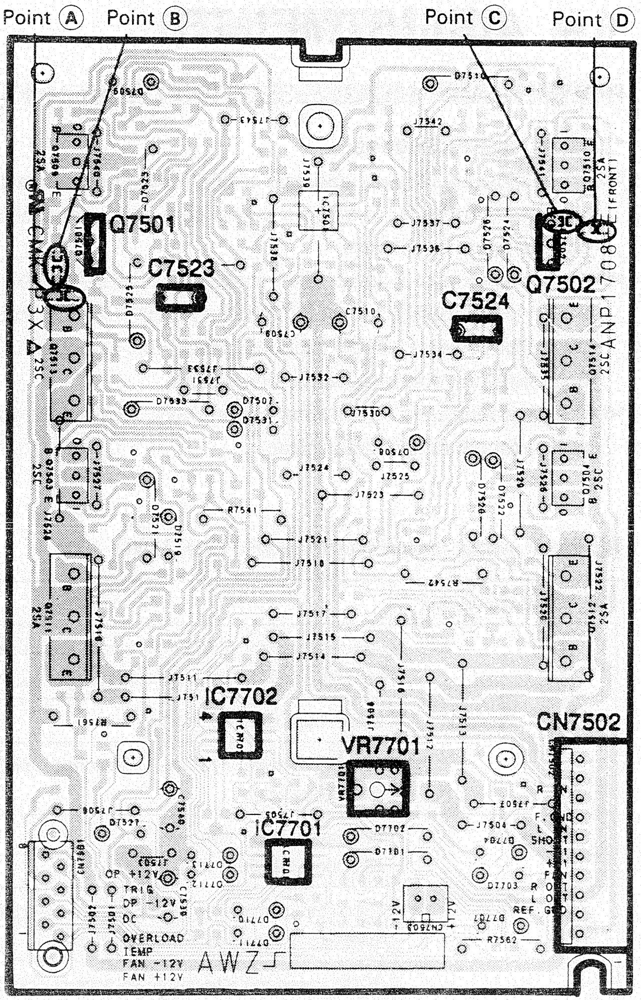

Point Ⓐ
Point Ⓑ
Point Ⓒ
Point Ⓓ
Q7501
C7523
C7524
Q7502
IC7702
VR7701
CN7502
IC7701
ANP1708
AWZ
OP +12V
TRIG
DP -12V
DC
OVERLOAD
TEMP
FAN -12V
FAN +12V

Fig. 3 FRONT ASSY FOR 50W
(This diagram is viewed from the foil side)

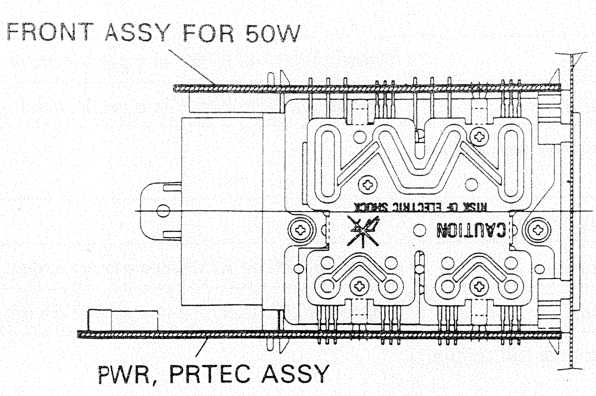

FRONT ASSY FOR 50W
CAUTION
RISK OF ELECTRIC SHOCK
PWR, PRTEC ASSY

Fig. 1 Power Amp Module

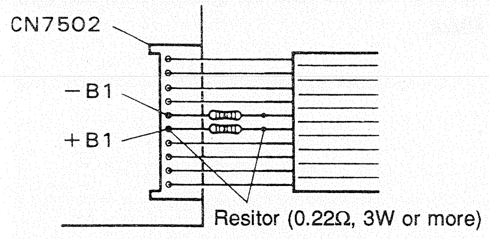

CN7502
−B1
+B1
Resitor (0.22Ω, 3W or more)

Fig. 2 FRONT ASSY FOR 50W

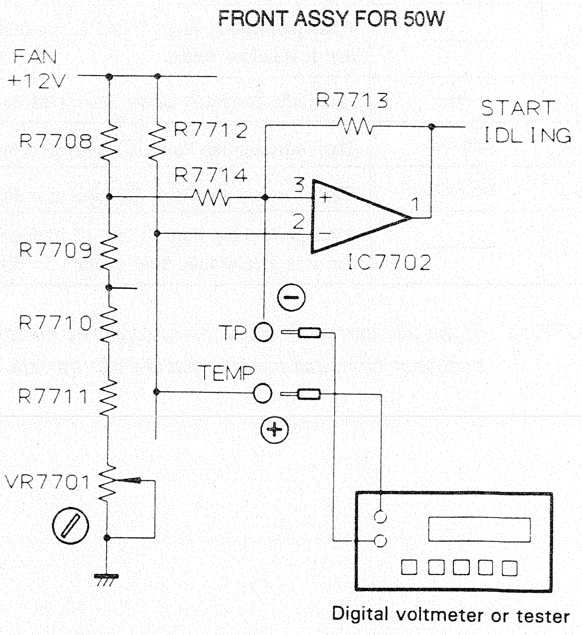

FRONT ASSY FOR 50W
FAN +12V
R7708
R7712
R7713
START IDLING
R7714
3
2
1
IC7702
R7709
R7710
R7711
⊖
TP
TEMP
⊕
VR7701
Digital voltmeter or tester

Fig. 4 Adjustment of Operating Temperature Setting of Fan Motor

1.5 PARTS LIST FOR PACKING

NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by " ◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

Mark	No.	Description	Parts No.
	1	Packing case	SHG1652
	2	Bottom protector	SHA1763
	3	Top protector	SHA1764
	4	Mat	SHC1501
NSP	5	Caution card	SRR1006
	6	Speaker cord	SDS−001
	7	Operating instructions (English/Spanish/Chinese)	SRD1130
NSP	8	Vinyl bag	SHL−033
NSP	9	Vinyl tight	KNK−431

1.6 PARTS LIST FOR EXPLODED VIEWS

● EXTERIOR

Mark	No.	Description	Parts No.
	1	Connection cord	SDF1041
	2	Top cover	SNK1641
	3	Baffle ASSY	SXB1203
	4	Speaker	SWA1017
	5	Screw	TNC35P120FMC
NSP	6	Cable clamper A	SNE1009
	7	Screw	BMZ60P250FMC
	8	Screw	BPZ30P060FMC
	9	Screw	BPZ40P300FMC
	10	Screw	IBZ40P250FZK
	11	Screw	SBA−194
	12	Screw	SBA1096
NSP	13	LAMP ASSY	AWZ7224
NSP	14	LEVEL METER ASSY	AWZ7225
NSP	15	Cabinet	SMM1568
NSP	16	Adhesive tape (both sides)	SEH1017

● POWER AMP SECTION

Mark	No.	Description	Parts No.
NSP	1	Base board	AMA7001
	2	Foot	AEC7013
	3	Screw	BTZ40P140FMC
	4	Sush ASSY	AMB7093
	5	Rear panel	ANC7098
	6	Screw	BTZ40P120FMC
	7	POWER SUPPLY ASSY	AWZ7218
	8	Screw	BTZ30P300FMC
NSP	9	Bush	AEC1326
NSP	10	Collar	AEC1327
	11	Wire with terminal	ADX7021
⚠	12	Fuse 1A, FU1101	AEK−508
⚠	13	Fuse 1A, FU1102	AEK−508
	14	Strain relief	AEC−882
⚠	15	AC power cord	ADG1051
	16	POWER MOD. F50 ASSY	AXQ1018
⚠	17	Line voltage selector S1101	AKX−507
⚠	18	Power transformer (AC110V/120−127V/220V/240V)	ATS7030
	19	Front panel	AMB7086
	20	Push button (POWER)	AAD7065
	21	POWER SW ASSY	AWZ7220
	22	Switch (LIGHT ON/OFF)	AAD7066
	23	Switch (PHASE 0° /180°)	AAD7066
	24	FRONT ASSY	AWZ7219
	25	Power lens	AAK2343
NSP	26	POWER IND. ASSY	AWZ7223
NSP	27	FILTER ASSY	AWZ7222
NSP	28	Holder	ANG1488
NSP	29	Holder	ANG1604
	30	Barrier	AED7001
NSP	31	CONNECT ASSY	AWZ7221
	32	Nut	NK70FMC
	33	Knob (LEVEL)	AAB7029
	34	Knob (TURNOVER)	AAB7027
	35	Binder	AEC−093
	36	Screw	BPZ30P080FZK
	37	Screw	BPZ26P080FMC
	38	Screw	ABA−234
	39	Screw	CTZ40P140FZB
	40	Screw	BPZ30P120FMC
	41	Wire with terminal	ADX7034
	42	Spacer	AED7003

● POWER MOD. F50 (POWER MODULE)

Mark	No.	Description	Parts No.
	1	FRONT ASSY FOR 50W	AWZ5390
	2	PWR, PRTEC ASSY	AWZ5392
	3	Heat sink (AL)	ANH7007
	4	Bracket (MTL)	ANG1868
	5	Sheet	AEB1256
	6	Mold A (PLS)	AMR2594
	7	Mold B (PLS)	AMR2595
	8	Screw (3×10)	ABA1021
	9	Screw	BBZ30P140FZK
	10	Screw	BPZ30P350FZK
	11	Fan motor	AXM1019
	12	Regulator IC (IC7401)	MC7812CT
	13	Regulator IC (IC7402)	NJM7912A
	14	Regulator IC (IC7403)	MC7812CT
	15	Regulator IC (IC7404)	MC7805CT
⚠	16	Transistor (Q7511)	2SA1263N
⚠	17	Transistor (Q7512)	2SA1263N
⚠	18	Transistor (Q7513)	2SC3180N
⚠	19	Transistor (Q7514)	2SC3180N

1.7 PCB PARTS LIST

NOTES:

- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Parts marked by " ◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω → 56×10^1 → 561 ········ RD1/8PM$\boxed{5}\boxed{6}\boxed{1}$J
47kΩ → 47×10^3 → 473 ········ RD1/4PS$\boxed{4}\boxed{7}\boxed{3}$J
0.5Ω → 0R5 ········ RN2H$\boxed{0}\boxed{R}\boxed{5}$K
1Ω → 010 ········ RS1P$\boxed{0}\boxed{1}\boxed{0}$K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ → 562×10^1 → 5621 ········ RN1/4PC$\boxed{5}\boxed{6}\boxed{2}\boxed{1}$F

LIST OF ASSEMBLIES

Mark	No.	Description	Parts No.
	AF ASSY		AWK7056
	├─POWER SUPPLY ASSY		AWZ7218
	├─FRONT ASSY		AWZ7219
	├─POWER SW ASSY		AWZ7220
NSP	├─CONNECT ASSY		AWZ7221
NSP	├─FILTER ASSY		AWZ7222
NSP	├─POWER IND ASSY		AWZ7223
NSP	├─LAMP ASSY		AWZ7224
NSP	└─LEVEL METER ASSY		AWZ7225
	POWER MOD. F50 ASSY		AXQ1018
	├─FRONT ASSY FOR 50W		AWZ5390
	└─PWR, PRTEC ASSY		AWZ5392

AF ASSY

OTHERS

Mark	No.	Description	Parts No.
	Y9	BOARDIN READ WIRE	ADX7015
	Y10	BOARDIN READ WIRE	ADX7016
		P.C. BOARD	ANP7024

POWER SUPPLY ASSY

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC2201		XRA4558－P
	Q1001,Q1003		2SA933S
	Q1002		2SC1740S
	D1201		D3SBA20(A)
	D1005－D1009,D2201,D2202		HSS104－02
	D1001－D1004		S5566

CAPACITORS

Mark	No.	Description	Parts No.
	C1102	(0.01,AC400V)	ACG1003
	C1203		ACG1005
	C1201,C1202	(5600,DC42V)	ACH1047
	C2205		CEANP100M35
	C2201		CEANP2R2M50
	C1151		CEAS100M50
	C1002		CEAS102M35
	C1004		CEAS220M50
	C1001		CEAS222M35
	C1005,C1006,C1503		CEAS6R8M50
	C1205－C1208,C2202		CFTXA104J50
	C2208		CKCYB102K50
	C2203,C2204		CKCYF473Z50

RESISTORS

Mark	No.	Description	Parts No.
	R1006		RD1/2PM472J
⚠	R1201,R1202		RD1/4PMF6R8J
⚠	R2201,R2202		RS2LMF681J
⚠	R1205,R1206		RS2LMFR22J
		Other Resistors	RD1/8PM□□□J

OTHERS

Mark	No.	Description	Parts No.
	Y6	BOARDIN READ WIRE	ADX7013
	Y7	BOARDIN READ WIRE	ADX7014
	Y11	BOARDIN READ WIRE	ADX7018
		PIN JACK(1P)	AKB1220
		SPEAKER TERMINAL 8－P	AKE－111
	CN108	CONNECTOR(3P)	KPE3
	CN107	CONNECTOR(4P)	KPE4

FRONT ASSY

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC2202		XRA4558－P
	D1501－D1504		HSS104－02
	D1713		RD5.1ESB

SWITCHES AND RELAYS

Mark	No.	Description	Parts No.
	S1701		ASG7001
	S2201		ASG7002

CAPACITORS

Mark	No.	Description	Parts No.
	C1505		CCCSL101J50
	C1504		CEAS220M16
	C1501,C1502		CEAS2R2M50
	C1506		CKCYB102K50
	C1507		CKCYB122K50
	C2206,C2207		CKCYX104M16

RESISTORS

Mark	No.	Description	Parts No.
	R1701		RD1/4PM331J
⚠	R1707,R1708		RS1PMF390J
	VR1501	(100K－BX1)	ACT1085

Mark	No.	Description	Parts No.
		Other Resistors	RD1/8PM□□□J

POWER SW ASSY

SWITCHES AND RELAYS

Mark	No.	Description	Parts No.
	S1101		ASG1035

CAPACITORS

Mark	No.	Description	Parts No.
	C1101	(0.01,AC400V)	ACG1003

CONNECT ASSY

CAPACITORS

Mark	No.	Description	Parts No.
	C1003		ACG1005

FILTER ASSY

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC3551		UPC4570C

CAPACITORS

Mark	No.	Description	Parts No.
	C3557		CCCSL101J50
	C3551,C3552		CEAS100M50
	C3503		CEASR68M50
	C3554		CFTXA334J50
	C3502		CFTXA393J50
	C3501		CFTXA473J50
	C3553		CFTXA684J50
	C3555,C3556		CKCYX104M16

RESISTORS

Mark	No.	Description	Parts No.
	VR3551	(100K−C)	ACS1116
		Other Resistors	RD1/8PM□□□J

POWER IND ASSY

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	D1701		AEL1148

LAMP ASSY

OTHERS

Mark	No.	Description	Parts No.
	PL1701−PL1710	(8V,100MA)	AEL7002

LEVEL METER ASSY

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC1701		BA681A
	D1702−D1712		AEL7001
	D1714,D1715		HSS104−02

CAPACITORS

Mark	No.	Description	Parts No.
	C1703		CEJA100M16
	C1701,C1704		CEJA220M16

RESISTORS

Mark	No.	Description	Parts No.
		Other Resistors	RD1/8PM□□□J

POWER MOD. F50 ASSY

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC7404		MC7805CT
	IC7401,IC7403		MC7812CT
	IC7402		NJM7912A
⚠	Q7511,Q7512		2SA1263N
⚠	Q7513,Q7514		2SC3180N

OTHERS

Mark	No.	Description	Parts No.
		SCREW	ABA1021
		SHEET	AEB1256
		MOLD A	AMR2594
		MOLD B	AMR2595
		BRACKET	ANG1868
		HEAT SINK	ANH7007
		POWER MOD. PCB	ANP1708
		FAN MOTOR	AXM1019
		SCREW	BBZ30P140FZK
		SCREW	BPZ30P350FZK

FRONT ASSY FOR 50W

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	IC7501		UPC4570G2
	IC7701,IC7702		XRA4558F−P
	Q7507,Q7508		2SA1182
	Q7601		2SA1255
	Q7517,Q7518		2SB1115
	Q7501,Q7502		2SC2240
	Q7605,Q7606,Q7703		2SC2712
	Q7505,Q7506		2SC2859
	Q7603		2SC3138
	Q7515,Q7516		2SD1615
	Q7704		XDC143EK
	D7505,D7506,D7517,D7518		1SS181
	D7503,D7504,D7516		1SS184
	D7521−D7524		1SS244
	D7519,D7520,D7525,D7526,D7531		HSS104−02
	D7533,D7701−D7704,D7707		HSS104−02
	D7710−D7714		HSS104−02
	D7507−D7510		RD3.3ESB2

CAPACITORS

Mark	No.	Description	Parts No.
	C7703		ACG1051
	C7523,C7524		ACH1150
	C7509,C7510		ACH1151
	C7539,C7540		ACH1248
	C7519−C7522,C7545−C7552		CCSQCH101J50
	C7525−C7528		CCSQCH271J50
	C7503,C7504		CCSQCH331J50
	C7541,C7542		CCSQCH470J50
	C7529−C7532		CKSQYB333K50
	C7543,C7544		CKSQYB472K50
	C7602		CKSQYF103Z50
	C7601,C7603,C7702		CKSQYF104Z50
	C7537		CKSQYF473Z50

RESISTORS

Mark	No.	Description	Parts No.
	R7519,R7520		ACN1106
	R7515,R7516		ACN1107
⚠	R7541,R7542		RD1/4PMF100J
	R7711		RS1/10S1001F
⚠	R7547−R7550		RS1/10S2200F
	R7709		RS1/10S39R0F
	R7710		RS1/10S56R0F
	R7708		RS1/10S7500F
	R7753		RS1/8S000J
⚠	R7537−R7540		RS1/8S100J

Mark	No.	Description	Parts No.
	R7553		RS1/8S101J
⚠	R7543,R7544		RS1/8S7R5J
	VR7701		ACP1053
		Other Resistors	RS1/10S□□□J

PWR,PRTEC ASSY

SEMICONDUCTORS

Mark	No.	Description	Parts No.
	Q7208,Q7215,Q7219		2SA1162
	Q7213		2SA1182
	Q7301,Q7302		2SC1815
	Q7207,Q7209,Q7212,Q7214,Q7218		2SC2712
	Q7220,Q7221		2SC2712
	Q7216		2SC2859
	Q7211,Q7217		2SC3138
	Q7210,Q7222		XDA124EK
	D7201,D7205		HSS104−02
	D7204,D7206		HZS6C3L
	D7203		HZS9A2L

CAPACITORS

Mark	No.	Description	Parts No.
	C7402,C7406,C7408		ACG1050
	C7401,C7405,C7407		ACG1053
	C7212		ACH1056
	C7409		ACH1150
	C7207,C7208		ACH1151
	C7205		CEJA101M10
	C7301		CKSQYB332K50
	C7213		CKSQYF103Z50
	C7206,C7404		CKSQYF104Z50

RESISTORS

Mark	No.	Description	Parts No.
	R7403,R7404		ACN1104
	R7303		RS1/10S1002F
	R7304		RS1/10S8200F
		Other Resistors	RS1/10S□□□J

OTHERS

Mark	No.	Description	Parts No.
	CN7101	CONNECTOR(12P)	KPE12

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The Art of Entertainment

Service Manual

ORDER NO.
RRZ1151

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SPEAKER SYSTEM

S-W99

CHAPTER 2

CONTENTS

CHAPTER 2

2.1 PACKING 2-2
2.2 EXPLODED VIEWS 2-3
2.3 SCHEMATIC AND PCB CONNECTION DIAGRAMS 2-6

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 300 Allstate Parkway Markham, Ontario L3R 0P2 Canada
PIONEER ELECTRONIC [EUROPE] N.V. Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911

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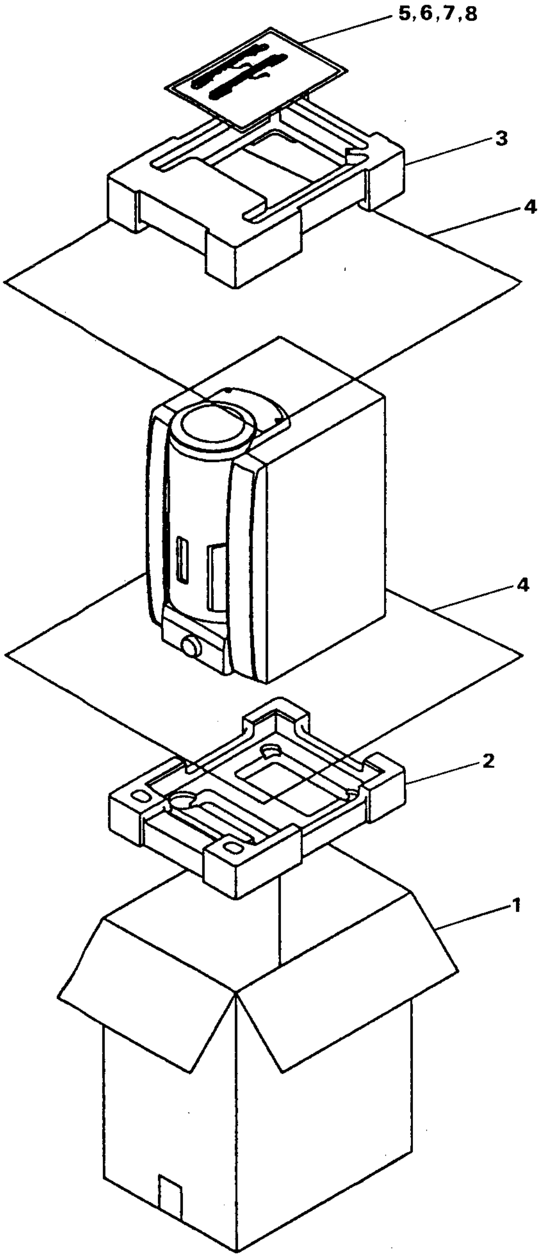
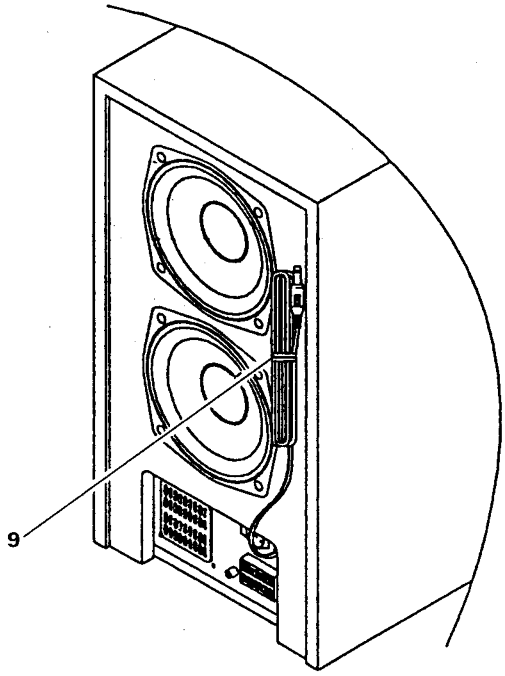
T-FFG MAY. 1994 Printed in Japan

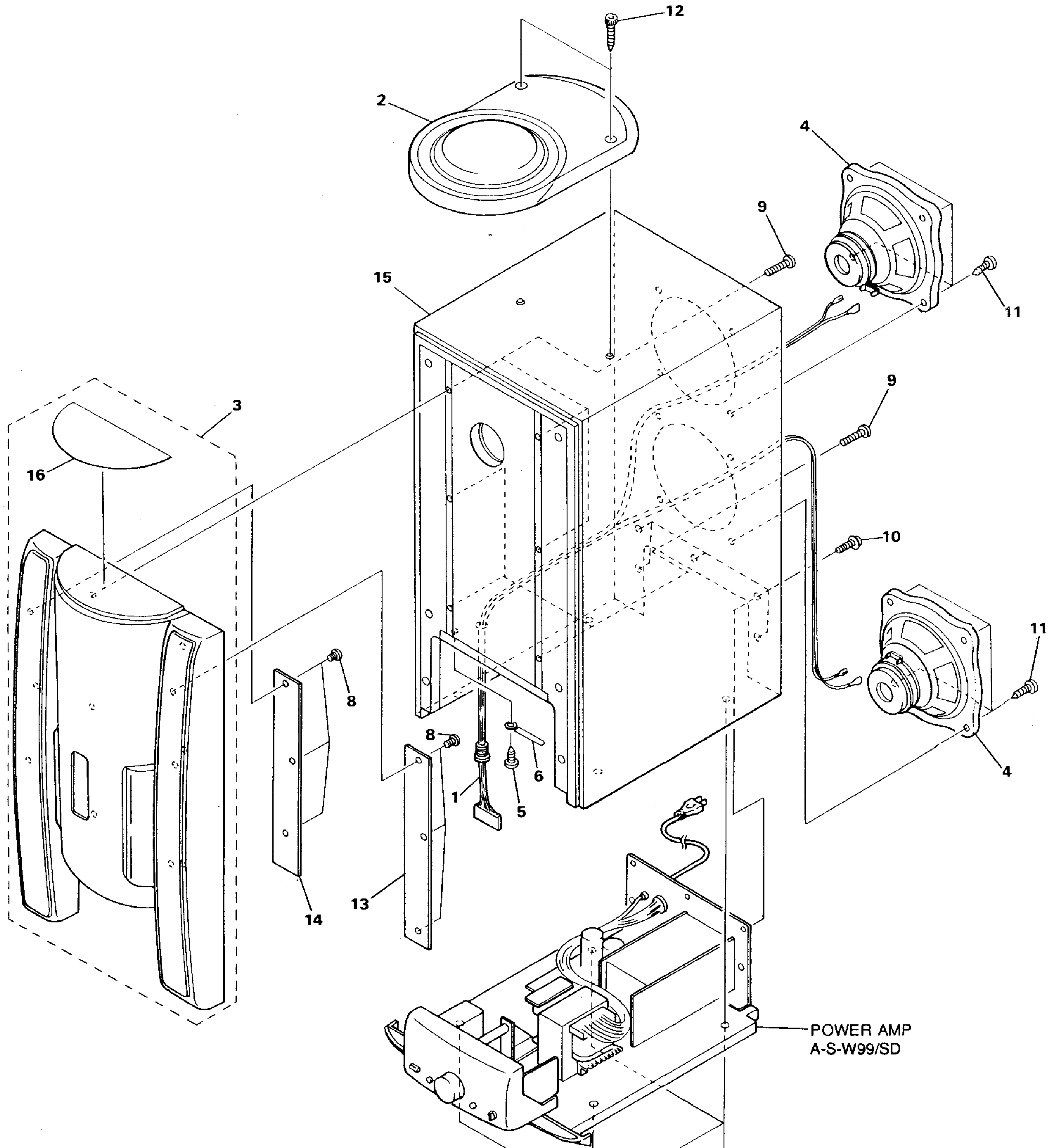
2.1 PACKING





2.2 EXPLODED VIEWS

● EXTERIOR


12
2
4
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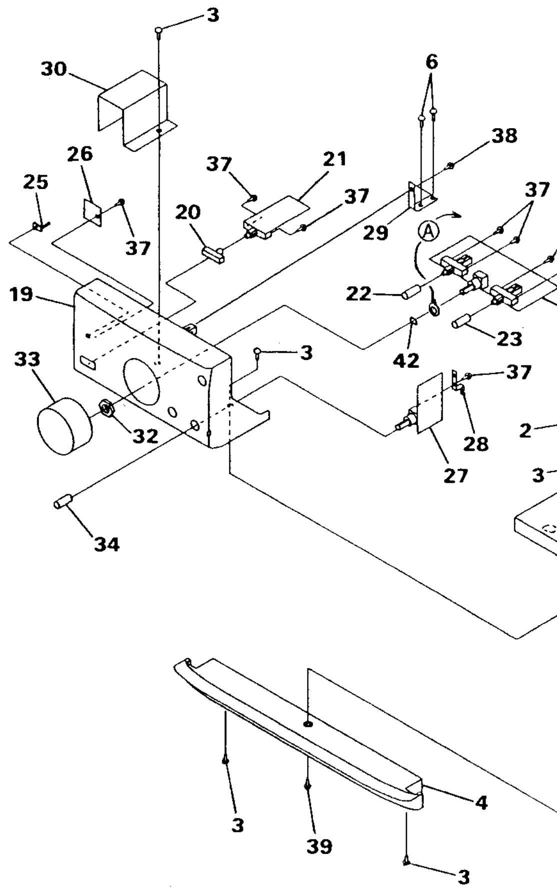
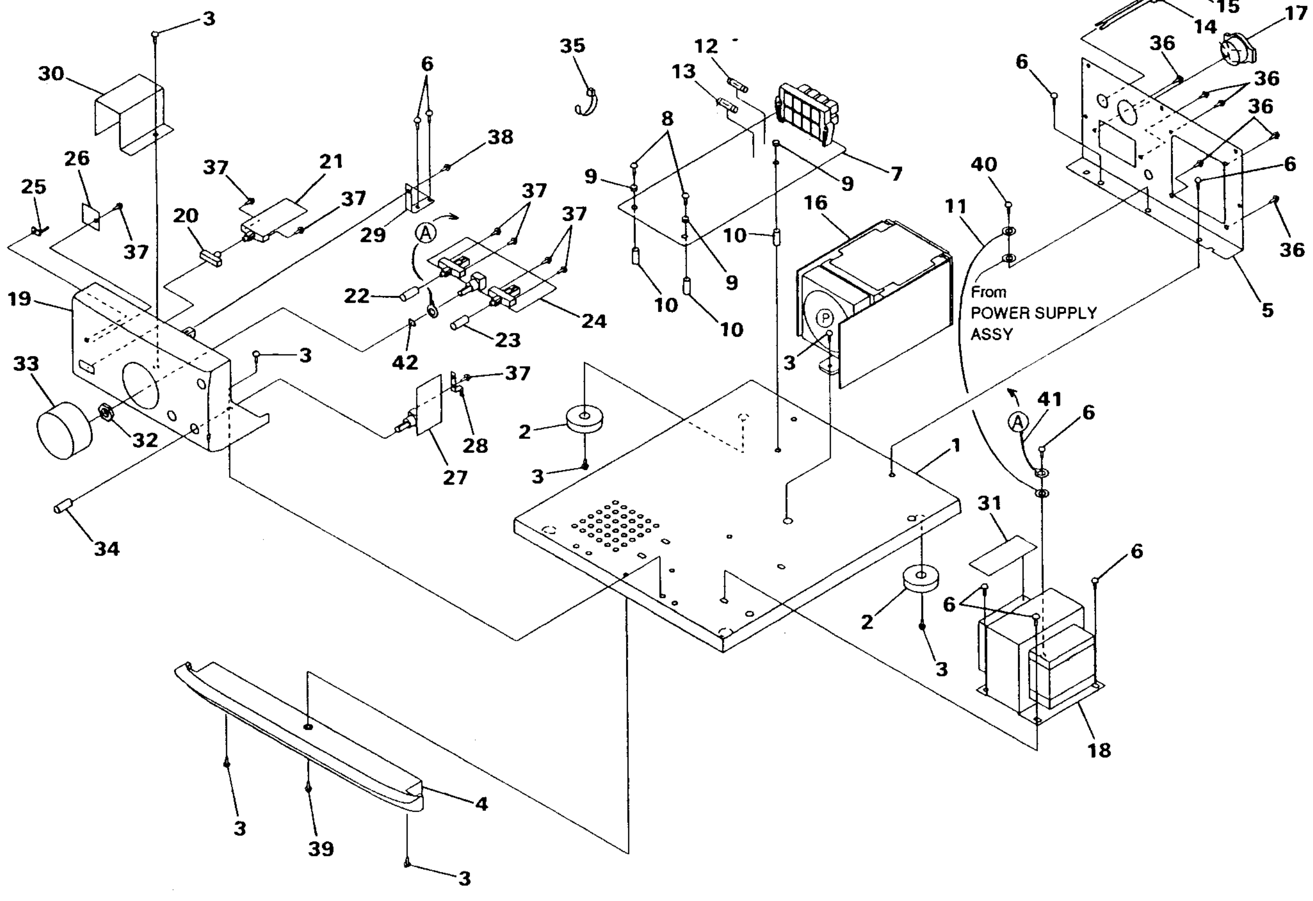
15
11
9
3
16
10
11
8
8
6
1
5
4
14
13
POWER AMP
A-S-W99/SD
7

● POWER AMP SECTION

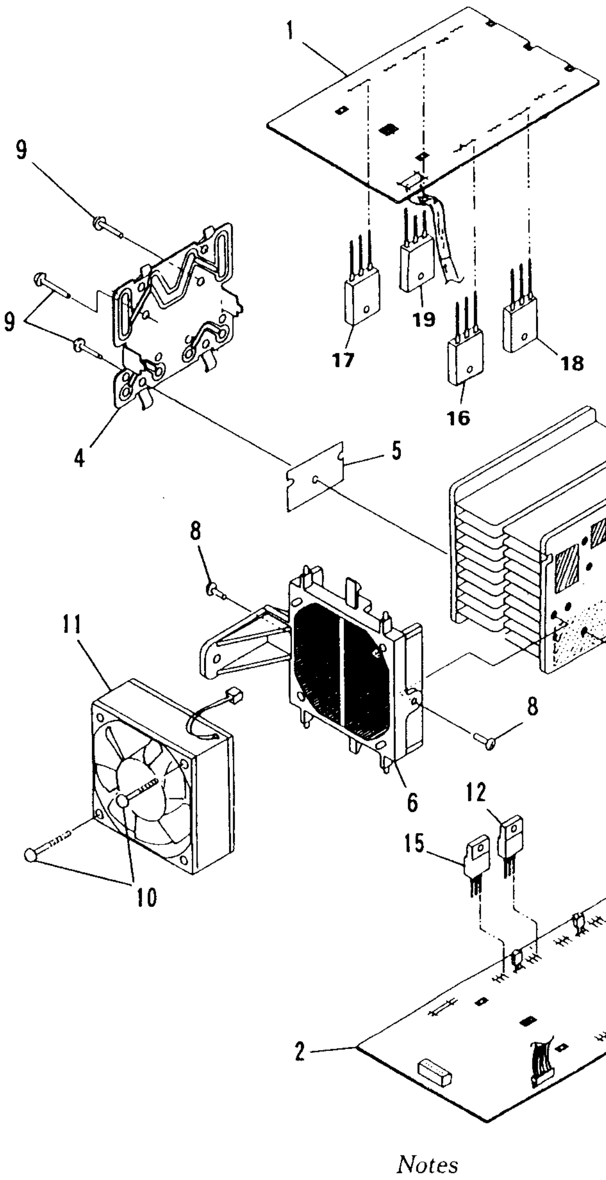

3
30
6
38
26
37
21
25
37
37
20
29
A
37
19
22
3
42
23
33
32
37
28
2
27
3
34
4
3
39
3

**NOTE: Scr
are**

- **POWER AMP SECTION**

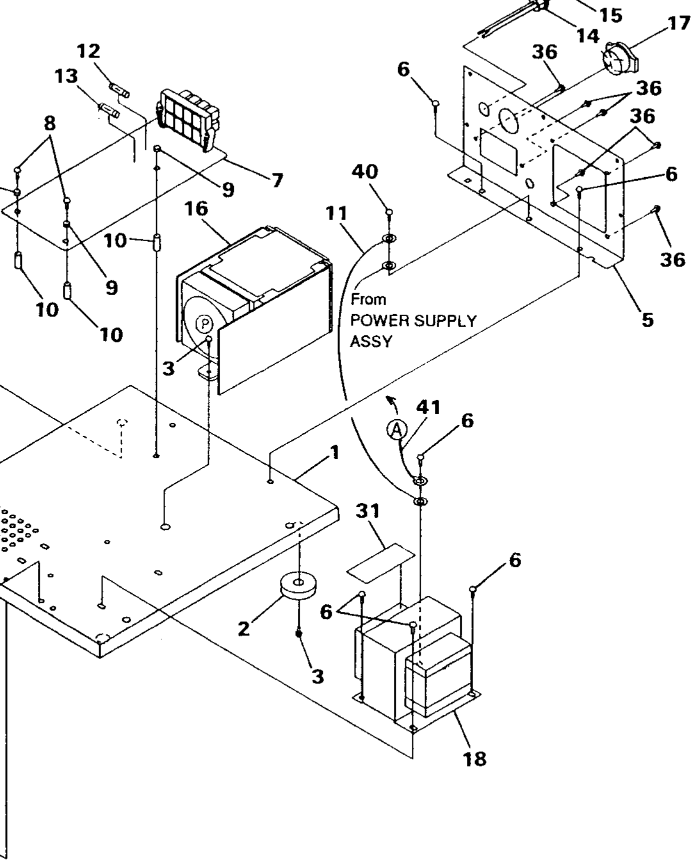

3
30
6
35
12
13
7
15
14
17
36
36
36
6
36
8
9
9
9
10
10
10
16
40
11
From
POWER SUPPLY
ASSY
5
38
26
25
37
21
37
37
20
29
A
37
37
19
22
24
42
23
33
3
37
32
34
28
27
2
3
3
P
41
A
6
1
31
6
2
6
3
18
4
3
39
3

- **POWER MOD. F50 (POWER MODULE)**


1
9
9
4
17
19
16
18
5
8
11
6
8
12
15
10
2

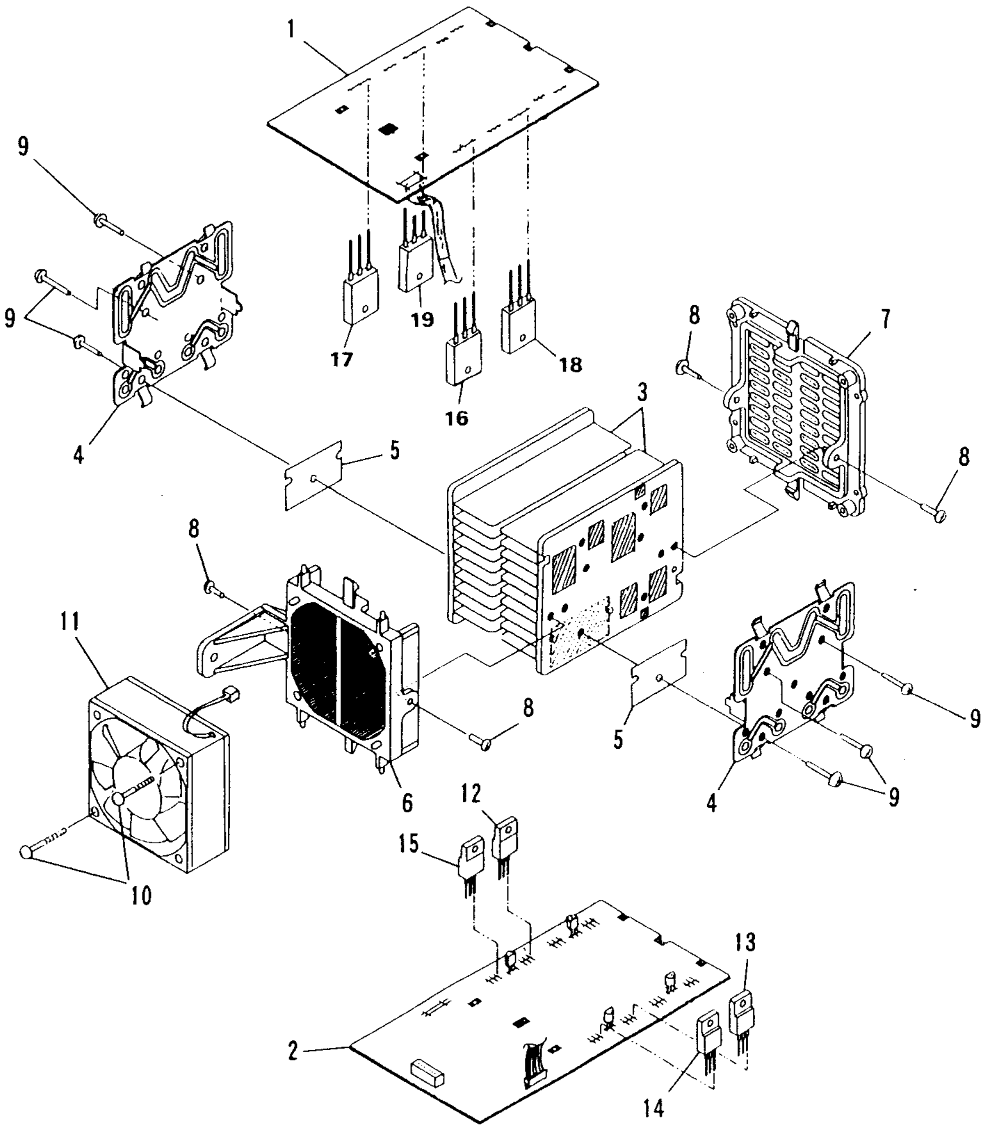
Notes
- *Ensure that silic*
A (No. 6) and M

NOTE: Screws adjacent to ▼ mark on product are used for disassembly.


12
13
8
9
7
16
10
10
9
10
10
3
P
40
11
From
POWER SUPPLY
ASSY
15
14
17
36
36
36
6
6
36
5
41
A
6
1
31
2
3
6
6
18

adjacent to ▼ mark on product
d for disassembly.

● POWER MOD. F50 (POWER MODULE)

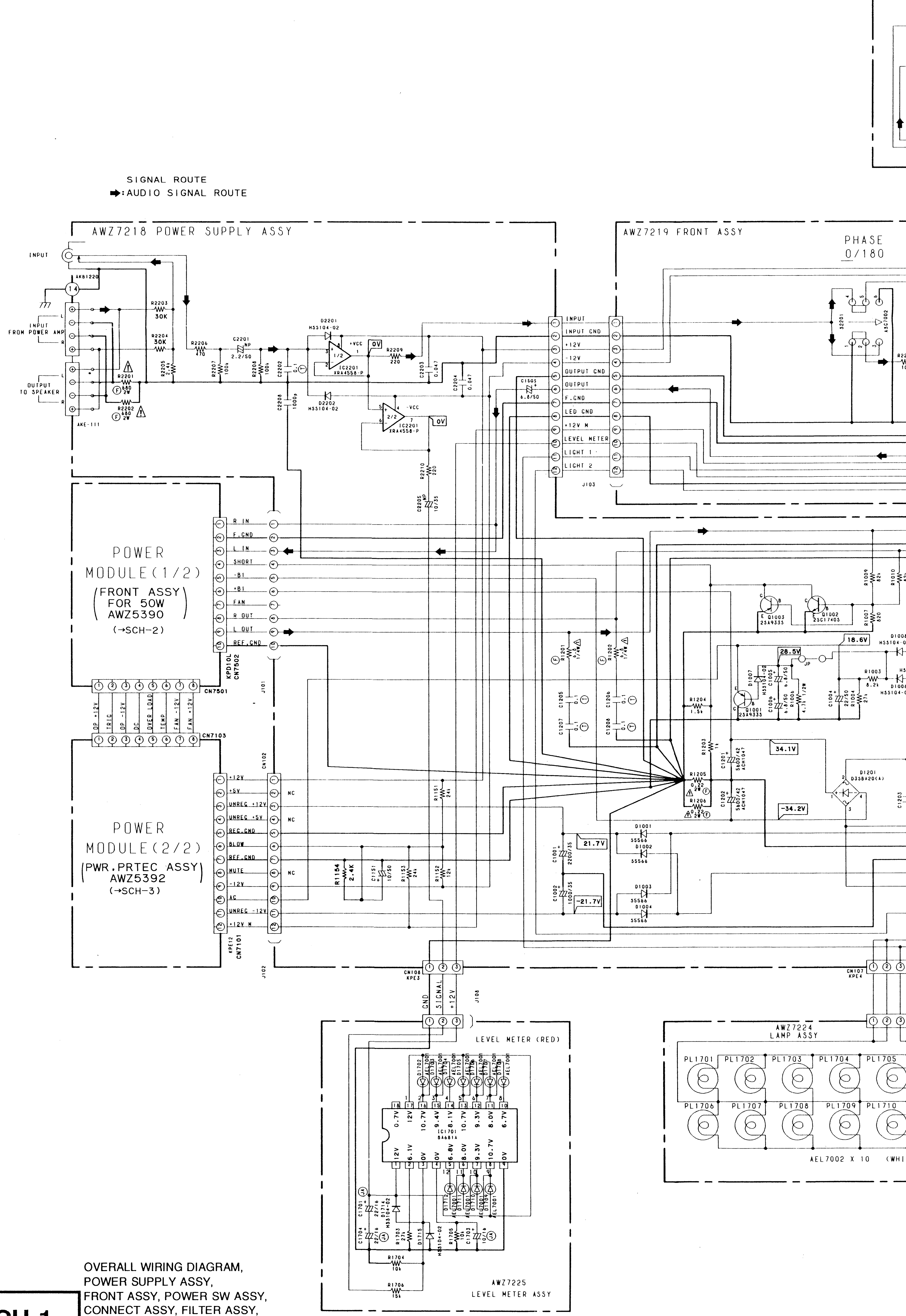

1
9
9
17
19
16
18
8
7
4
5
3
8
8
11
6
8
5
9
4
9
10
15
12
13
2
14

Notes

- *Ensure that silicon grease does not adhere to the MOLD A (No. 6) and MOLD B (No. 7).*

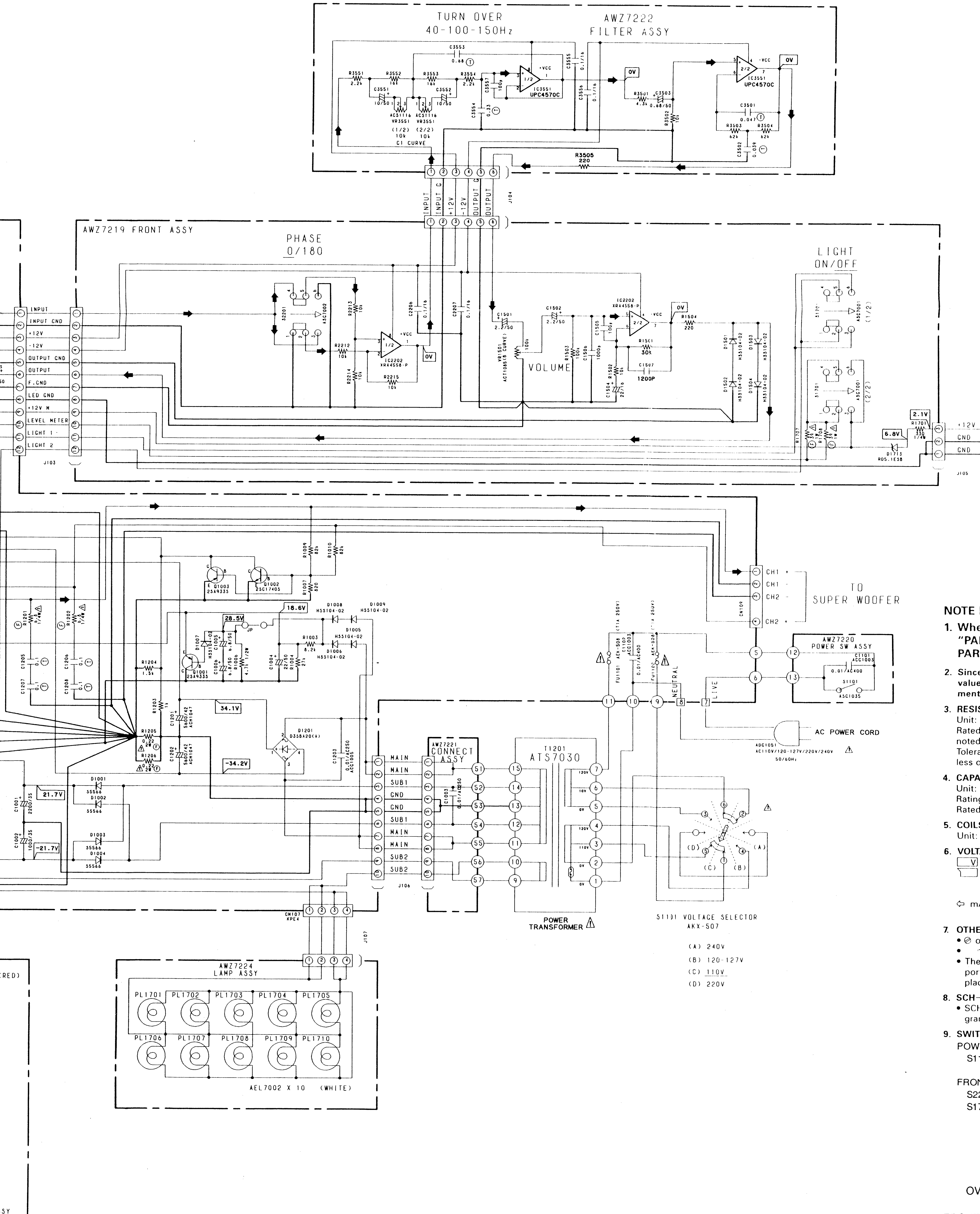
2.3 SCHEMATIC AND PCB CONNECTION DIAGRAMS

2.3.1 OVERALL WIRING DIAGRAM, POWER SUPPLY, FRONT, POWER SW, CONNECT, FILTER, POWER IND, LAMP, LEVEL METER ASSEMBLIES


SIGNAL ROUTE
➡:AUDIO SIGNAL ROUTE
AWZ7218 POWER SUPPLY ASSY
INPUT
AKB1220
INPUT FROM POWER AMP
OUTPUT TO SPEAKER
AKE-111
R2203 30K
R2204 30K
R2201 680 2W
R2202 680 2W
IC2201 XRA4558-P
D2201 HSS104-02
D2202 HSS104-02
0V
AWZ7219 FRONT ASSY
PHASE 0/180
INPUT
INPUT GND
+12V
-12V
OUTPUT GND
OUTPUT
F.GND
LED GND
+12V M
LEVEL METER
LIGHT 1
LIGHT 2
J103
POWER MODULE(1/2)
(FRONT ASSY FOR 50W AWZ5390)
(→SCH-2)
R IN
F.GND
L IN
SHORT
-B1
+B1
FAN
R OUT
L OUT
REF.GND
KPD10L CN7502
J101
CN7501
OP +12V
TRIG
OP -12V
DC
OVER LOAD
TEMP
FAN -12V
FAN +12V
CN7103
POWER MODULE(2/2)
(PWR.PRTEC ASSY AWZ5392)
(→SCH-3)
+12V
+5V
UNREG +12V
UNREG +5V
REG.GND
BLOW
REF.GND
MUTE
-12V
AC
UNREG -12V
+12V M
NC
KPE12 CN7101
CN102
J102
CN108 KPE3
GND
SIGNAL
+12V
J108
LEVEL METER (RED)
IC1701 BA6B1A
AWZ7225 LEVEL METER ASSY
Q1001 2SA933S
Q1002 2SC1740S
Q1003 2SA933S
D1201 D3SBA20(A)
28.5V
18.6V
34.1V
-34.2V
21.7V
-21.7V
CN107 KPE4
AWZ7224 LAMP ASSY
PL1701
PL1702
PL1703
PL1704
PL1705
PL1706
PL1707
PL1708
PL1709
PL1710
AEL7002 X 10

SCH-1

OVERALL WIRING DIAGRAM,
POWER SUPPLY ASSY,
FRONT ASSY, POWER SW ASSY,
CONNECT ASSY, FILTER ASSY,
POWER IND ASSY, LAMP ASSY,
LEVEL METER ASSY


TURN OVER
40-100-150Hz
AWZ7222
FILTER ASSY
C3553
0.68
R3551
2.2k
R3552
16k
R3553
16k
R3554
2.2k
C3551
10/50
C3552
10/50
ACS1116
VR3551
(1/2)
(2/2)
10k
C1 CURVE
C3557
100p
C3554
0.33
+VCC
1/2
IC3551
UPC4570C
C3555
0.1/16
C3556
0.1/16
0V
R3501
4.3k
C3503
0.68/50
R3502
10k
-VCC
2/2
C3501
0.047
R3503
62k
R3504
62k
C3502
0.039
R3505
220
INPUT
INPUT G
+12V
-12V
OUTPUT G
OUTPUT
J104
AWZ7219 FRONT ASSY
PHASE
0/180
S2201
ASG7002
R2213
10k
C2206
0.1/16
C2207
0.1/16
R2212
10k
R2214
10k
IC2202
XRA4558-P
R2215
10k
C1501
2.2/50
VR1501
ACT1085(B CURVE)
100k
C1502
2.2/50
VOLUME
R1503
100k
C1506
1000p
C1505
100p
R1502
10k
C1504
22/16
R1501
30k
C1507
1200P
R1504
220
D1501
D1502
D1503
D1504
HSS104-02
LIGHT
ON/OFF
S1701
ASG7001
(1/2)
(2/2)
R1707
R1708
2.1V
R1701
330
1/4W
6.8V
D1713
RD5.1ESB
+12V
GND
GND
J105
INPUT
INPUT GND
+12V
-12V
OUTPUT GND
OUTPUT
F.GND
LED GND
+12V M
LEVEL METER
LIGHT 1
LIGHT 2
J103
R1009
82k
R1010
82k
Q1003
2SA933S
Q1002
2SC1740S
R1007
820
18.6V
D1008
HSS104-02
D1009
HSS104-02
28.5V
JP
D1005
HSS104-02
R1003
8.2k
D1006
HSS104-02
D1007
HSS104-02
C1005
6.8/50
C1006
6.8/50
R1006
4.7k
1/2W
Q1001
2SA933S
C1004
22/50
R1004
27k
R1201
6.8
1/4W
R1202
6.8
1/4W
C1205
0.1
C1206
0.1
C1207
0.1
C1208
0.1
R1204
1.5k
R1203
1k
C1201
5600/42
ACH1047
34.1V
R1205
0.22
2W
R1206
0.22
2W
C1202
5600/42
ACH1047
-34.2V
D1201
D3SBA20(A)
C1203
0.01/AC250
ACG1005
D1001
SS566
D1002
SS566
D1003
SS566
D1004
SS566
21.7V
C1001
2200/35
C1002
1000/35
-21.7V
MAIN
MAIN
SUB1
GND
GND
SUB1
MAIN
MAIN
SUB2
SUB2
J106
AWZ7221
CONNECT
ASSY
C1003
0.01/AC250
CN107
KPE4
J107
T1201
ATS7030
120V
110V
0V
POWER
TRANSFORMER
CH1 +
CH1 -
CH2 -
CH2 +
CN109
TO
SUPER WOOFER
FU1101
AEK-508
(T1A 250V)
C1102
ACG1003
0.01/AC400
FU1102
AEK-508
(T1A 250V)
NEUTRAL
LIVE
AWZ7220
POWER SW ASSY
C1101
ACG1003
0.01/AC400
S1101
ASG1035
AC POWER CORD
ADG1051
AC110V/120-127V/220V/240V
50/60Hz
S1131 VOLTAGE SELECTOR
AKX-507
(A) 240V
(B) 120-127V
(C) 110V
(D) 220V
(A)
(B)
(C)
(D)
AWZ7224
LAMP ASSY
PL1701
PL1702
PL1703
PL1704
PL1705
PL1706
PL1707
PL1708
PL1709
PL1710
AEL7002 X 10 (WHITE)
(RED)
SY

NOTE

1. Whe
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2. Since
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3. RESIS
Unit:
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4. CAPA
Unit:
Rating
Rated

5. COILS
Unit:

6. VOLT
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9. SWIT
POW
S11

FRON
S22
S17

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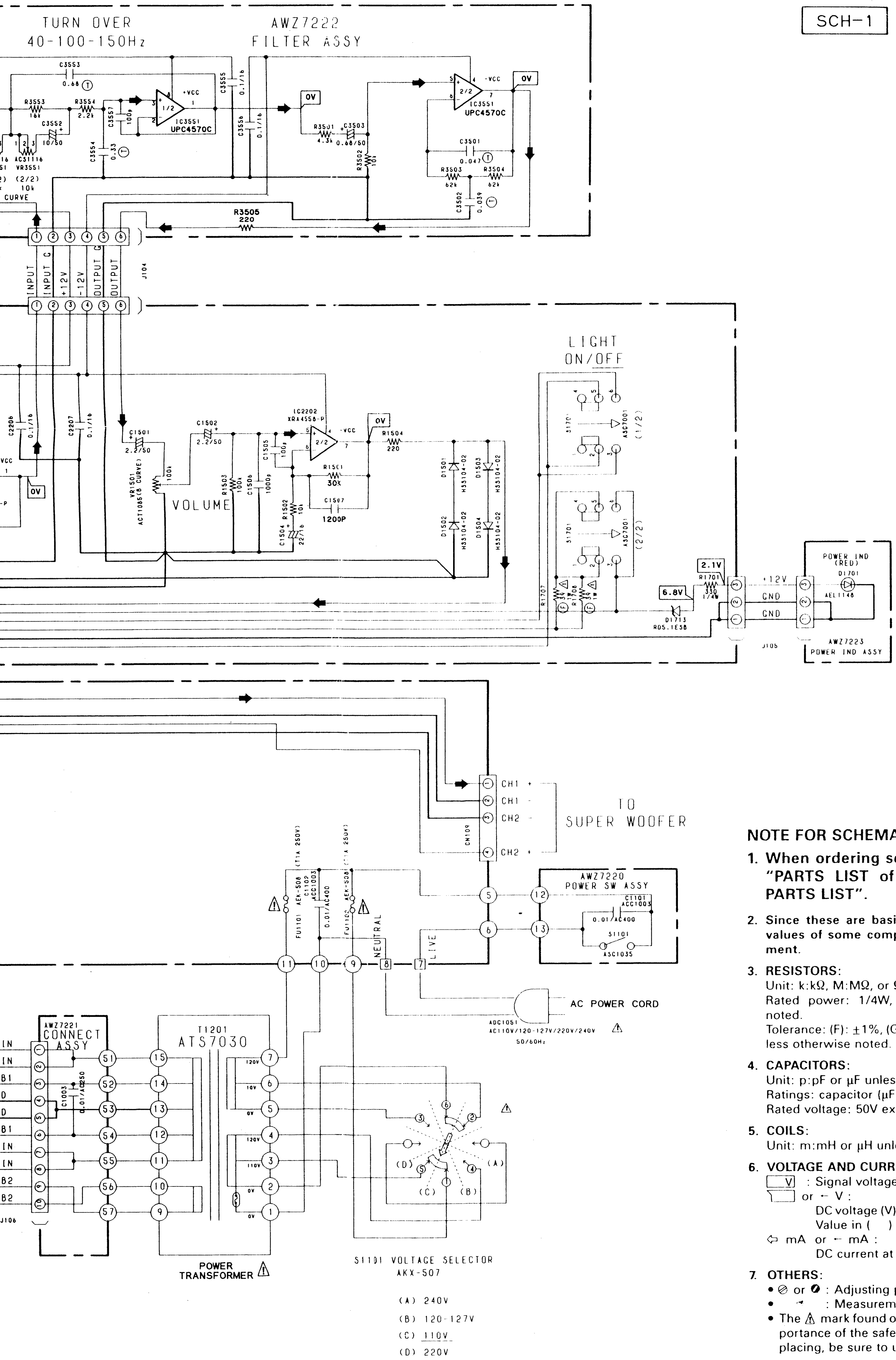
CONN
POWE

SCH-1


TURN OVER
40-100-150Hz
AWZ7222
FILTER ASSY
IC3551 UPC4570C
R3505 220
INPUT
INPUT G
+12V
-12V
OUTPUT G
OUTPUT
J104
LIGHT ON/OFF
IC2202 XRA4558-P
VOLUME
VR1501
R1504 220
R1501 30k
C1507 1200P
S1701
ASC7001
POWER IND (RED)
D1701
AEL1148
AWZ7223 POWER IND ASSY
J105
2.1V
6.8V
R1701
D1713 RD5.1ES8
+12V
GND
GND
0V
CH1 +
CH1 -
CH2 -
CH2 +
CN109
TO SUPER WOOFER
AWZ7220 POWER SW ASSY
C1101 ACG1005
0.01/AC400
S1101 ASC1035
FU1101 AEK-508 (T1A 250V)
FU1102 AEK-508 (T1A 250V)
C1102 ACG1005
NEUTRAL
LIVE
AC POWER CORD
ADC1051
AC110V/120-127V/220V/240V 50/60Hz
AWZ7221 CONNECT ASSY
C1003 0.01/AC250
J106
T1201 ATS7030
120V
10V
0V
120V
110V
0V
0V
POWER TRANSFORMER
S1101 VOLTAGE SELECTOR AKX-507
(A) 240V
(B) 120-127V
(C) 110V
(D) 220V

NOTE FOR SCHEMATIC DIAGRAMS (Type 1A)

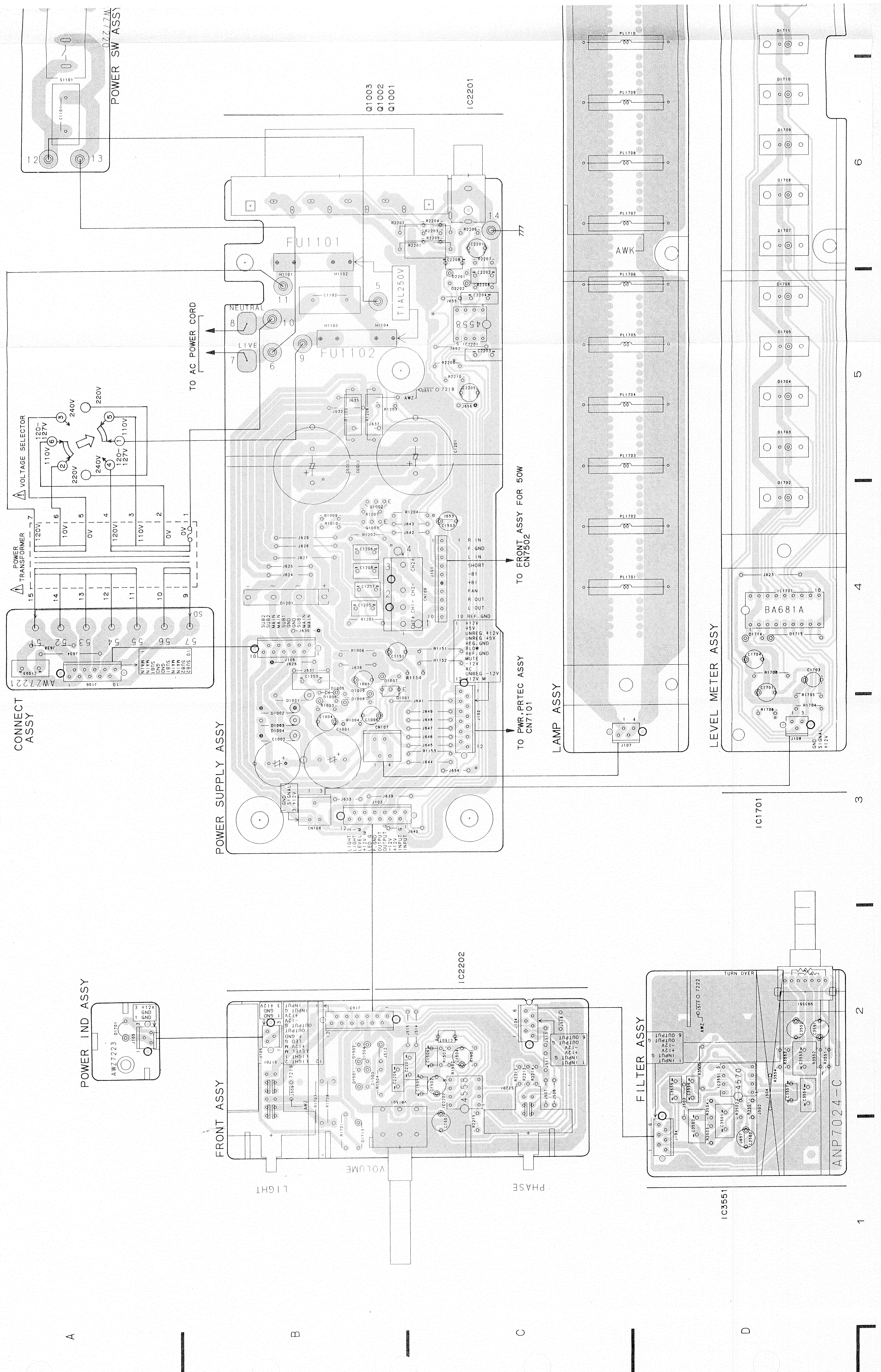
1. **When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".**
2. Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.
3. RESISTORS:
   Unit: k:kΩ, M:MΩ, or Ω unless otherwise noted.
   Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
   Tolerance: (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.
4. CAPACITORS:
   Unit: p:pF or μF unless otherwise noted.
   Ratings: capacitor (μF)/ voltage (V) unless otherwise noted.
   Rated voltage: 50V except for electrolytic capacitors.
5. COILS:
   Unit: m:mH or μH unless otherwise noted.
6. VOLTAGE AND CURRENT:
   V : Signal voltage at rated output.
   or ← V :
   DC voltage (V) at no input signal unless otherwise noted.
   Value in ( ) is DC voltage at rated power.
   ⇦ mA or ← mA :
   DC current at no input signal unless otherwise noted.
7. OTHERS:
   - ⊘ or ● : Adjusting point.
   - → : Measurement point.
   - The ⚠ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
8. SCH-□ ON THE SCHEMATIC DIAGRAM:
   - SCH-□ indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)
9. SWITCHES (Underline indicates switch position):
   POWER SW ASSY
   S1101 : POWER ON/OFF

   FRONT ASSY
   S2201 : PHASE 0 / 180
   S1701 : LIGHT ON/OFF

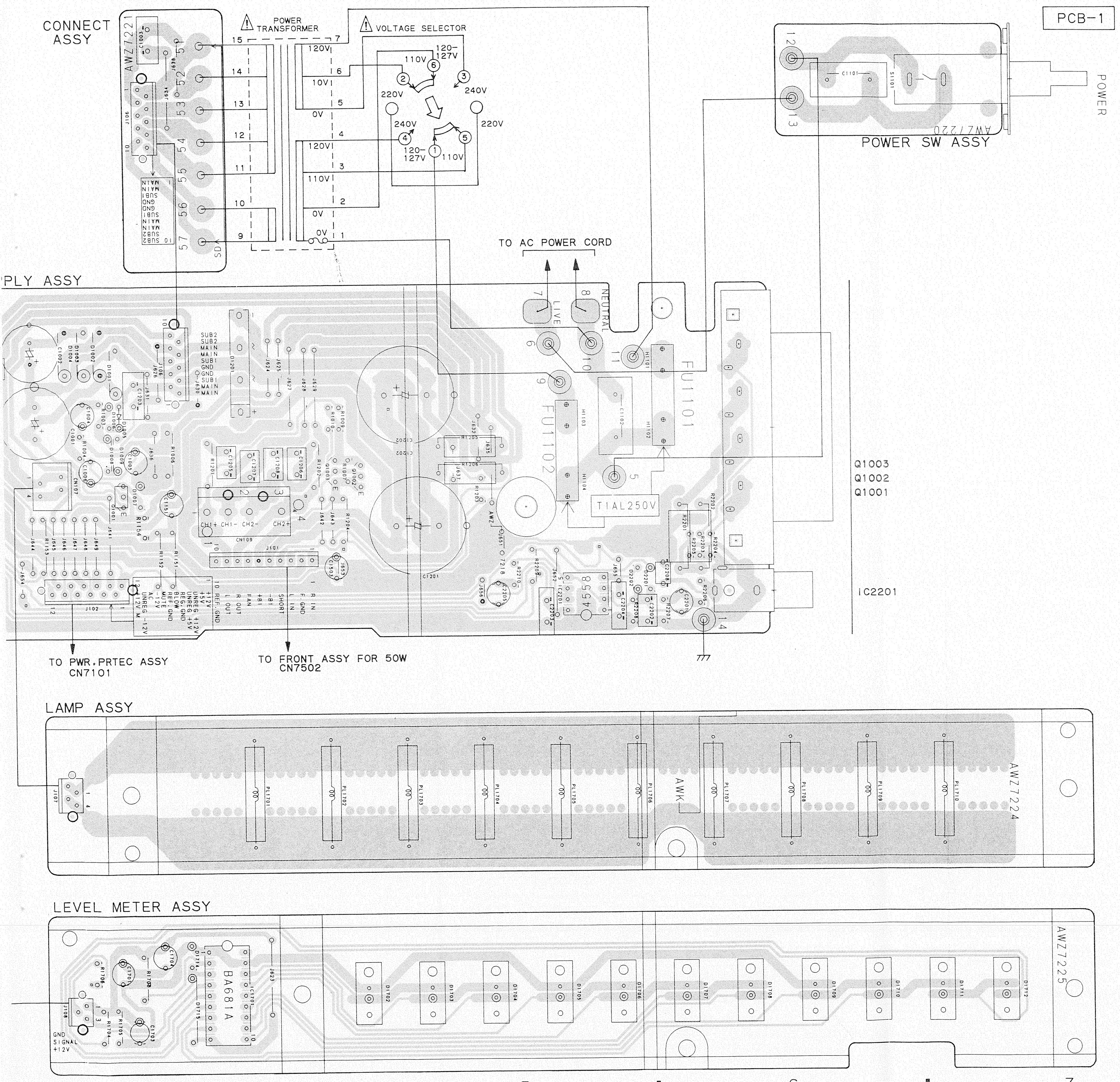
OVERALL WIRING DIAGRAM,
POWER SUPPLY ASSY,
FRONT ASSY, POWER SW ASSY,
CONNECT ASSY, FILTER ASSY,
POWER IND ASSY, LAMP ASSY,
LEVEL METER ASSY

SCH-1

● This diagram is viewed from the mounted parts side.


POWER SW ASSY
S1101
C1101
12
13
Q1003
Q1002
Q1001
IC2201
FU1101
FU1102
T1AL250V
H1101
H1102
H1103
H1104
C1102
NEUTRAL
LIVE
TO AC POWER CORD
4558
VOLTAGE SELECTOR
110V
120-127V
220V
240V
POWER TRANSFORMER
CONNECT ASSY
AWZ7221
POWER SUPPLY ASSY
TO FRONT ASSY FOR 50W CN7502
TO PWR,PRTEC ASSY CN7101
R IN
F.GND
L IN
SHORT
-B1
+B1
FAN
R OUT
L OUT
REF.GND
+12V
+5V
UNREG +12V
UNREG +5V
REG.GND
BLOW
MUTE
-12V
AC
UNREG -12V
LAMP ASSY
AWK
PL1701
PL1702
PL1703
PL1704
PL1705
PL1706
PL1707
PL1708
PL1709
PL1710
LEVEL METER ASSY
IC1701
BA681A
D1702
D1703
D1704
D1705
D1706
D1707
D1708
D1709
D1710
D1711
POWER IND ASSY
AWZ7223
D1701
FRONT ASSY
IC2202
4558
VOLUME
LIGHT
PHASE
FILTER ASSY
IC3551
4570
ANP7024-C
TURN OVER
LIGHT
LEVEL
INPUT
OUTPUT
GND
SIGNAL
A
B
C
D
1
2
3
4
5
6

- This diagram is viewed from the mounted parts side.

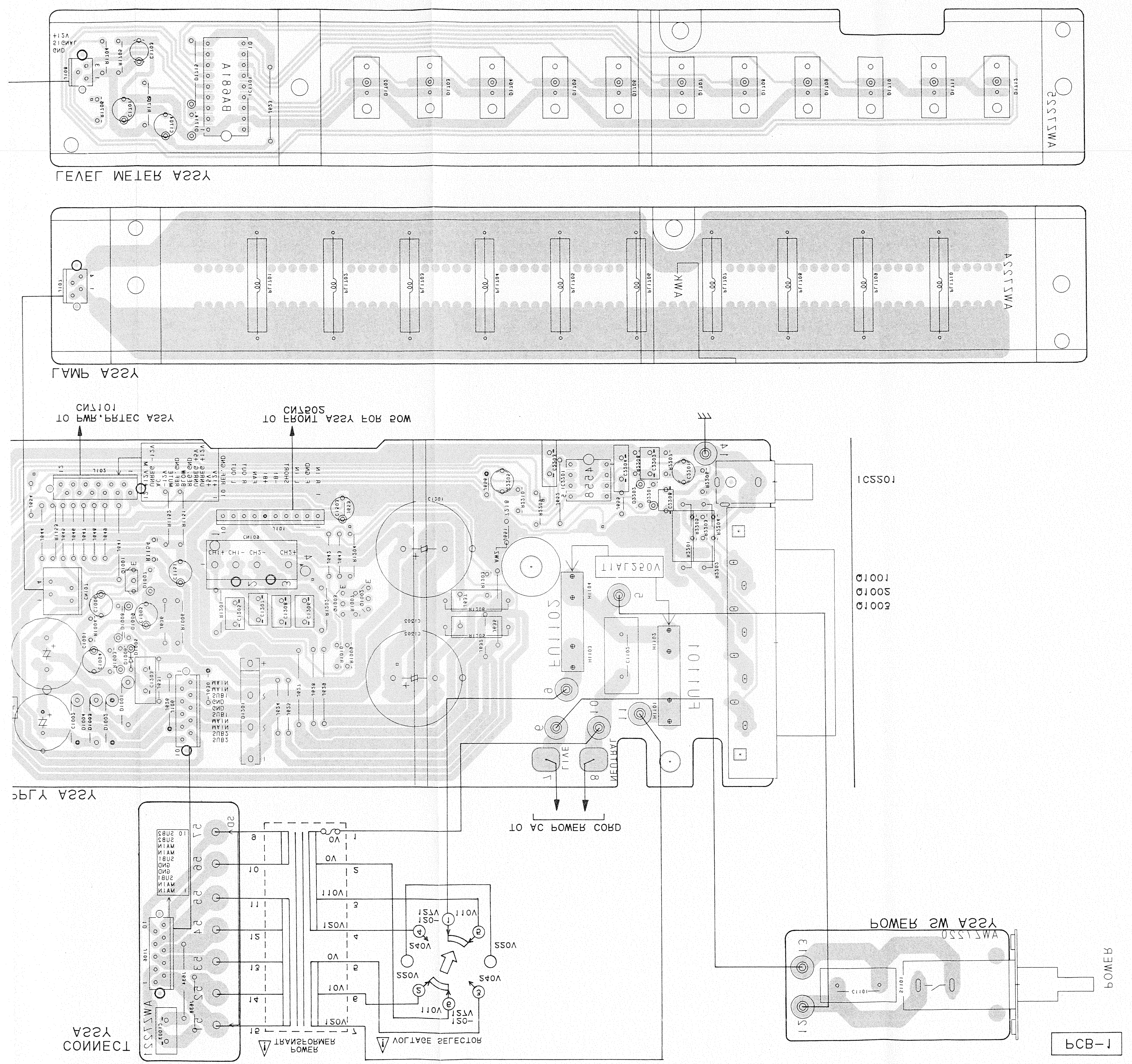

PCB-1
CONNECT ASSY
AWZ7221
POWER TRANSFORMER
VOLTAGE SELECTOR
120V
10V
0V
110V
220V
240V
120-127V
POWER
POWER SW ASSY
AWZ7220
S1101
C1101
TO AC POWER CORD
LIVE
NEUTRAL
FU1101
FU1102
T1AL250V
Q1003
Q1002
Q1001
IC2201
4558
PLY ASSY
TO PWR, PRTEC ASSY CN7101
TO FRONT ASSY FOR 50W CN7502
R IN
F. GND
L IN
SHORT
-B1
+B1
FAN
R OUT
L OUT
REF. GND
+12V
+5V
UNREG +12V
UNREG +5V
REG. GND
BLOW
REF. GND
MUTE
-12V
AC
UNREG -12V
12V M
SUB2
MAIN
SUB1
GND
J101
J102
J106
J107
J108
CN107
CN109
LAMP ASSY
AWZ7224
AWK
PL1701
PL1702
PL1703
PL1704
PL1705
PL1706
PL1707
PL1708
PL1709
PL1710
LEVEL METER ASSY
AWZ7225
BA681A
IC1701
D1702
D1703
D1704
D1705
D1706
D1707
D1708
D1709
D1710
D1711
D1712
GND
SIGNAL
+12V

NOTE FOR PCB DIAGRAMS:

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

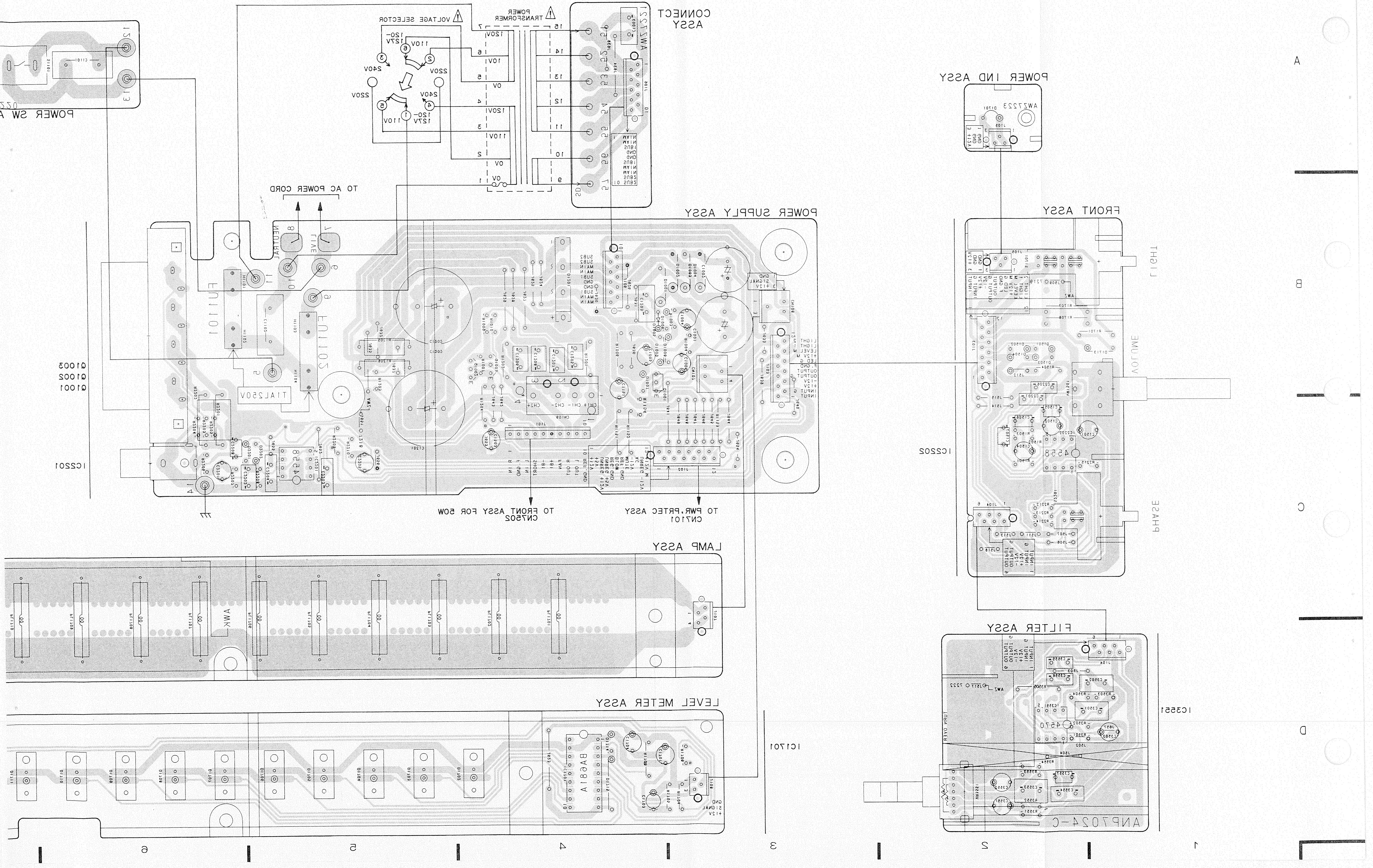
Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
E Q504 Q504	Q504 Q504	Transistor
D203 D203	D203	Diode
C513 C513	C513	Capacitor (Polarized)

3. The transistor terminal marked with E or ⊏ shows the emitter.
4. The diode terminal marked with ◎ or ⊂ shows cathode side.
5. The capacitor terminal marked with ◎ or ⊏ shows negative terminal.


LEVEL METER ASSY
AWZ7225
LAMP ASSY
AWZ7224
AWK
TO PWR,PRTEC ASSY
CN7101
TO FRONT ASSY FOR S0W
CN7502
PPLY ASSY
IC2201
Q1001
Q1002
Q1003
FU1101
FU1102
T1AL250V
4558
LIVE
NEUTRAL
TO AC POWER CORD
CONNECT ASSY
AWZ7221
POWER TRANSFORMER
VOLTAGE SELECTOR
110V
120-127V
220V
240V
0V
POWER SW ASSY
AWZ7220
POWER
PCB-1

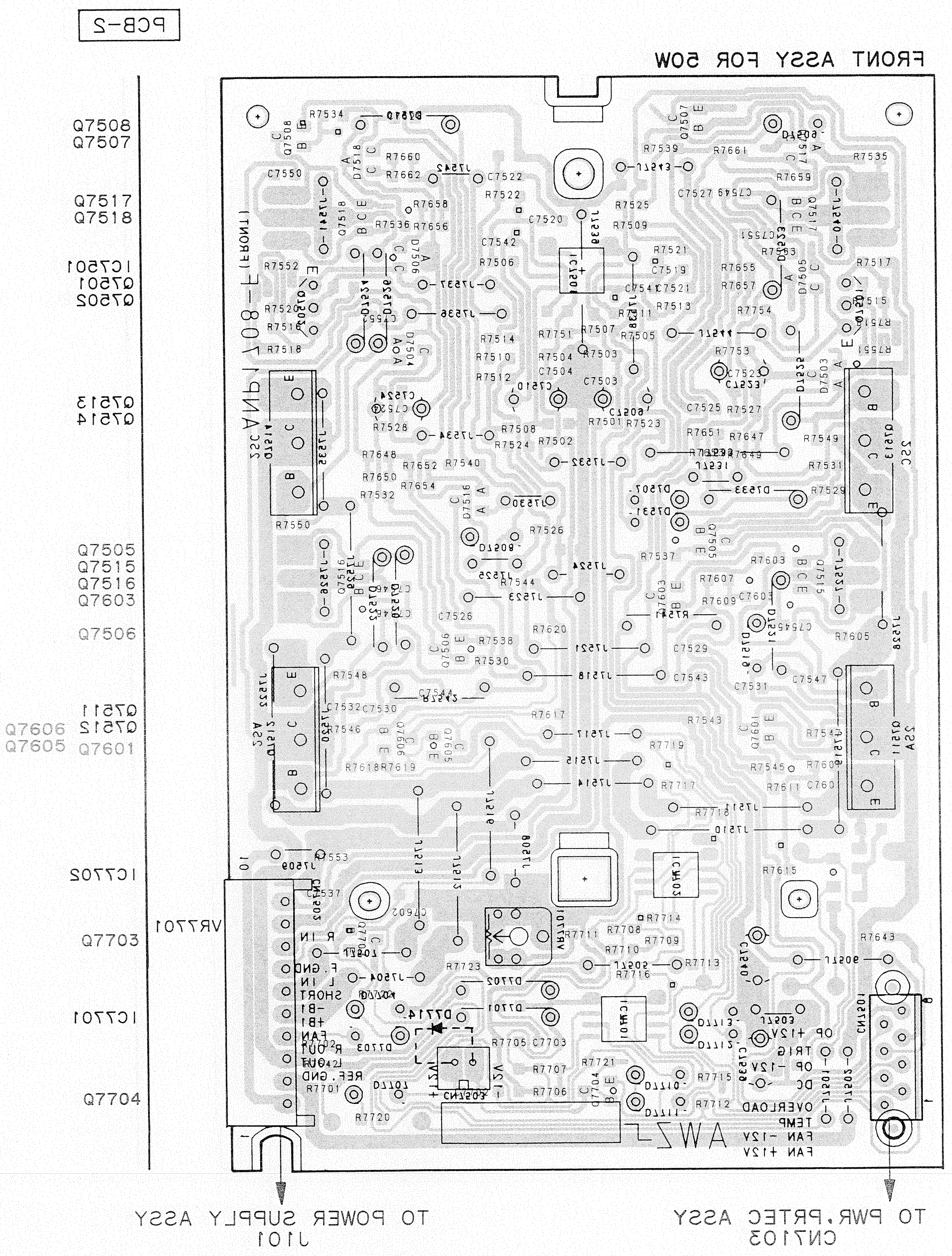
● This diagram is viewed from the foil side.

● This diagram is viewed from the foil side.


POWER SW ASSY
CONNECT ASSY
AWZ7221
POWER TRANSFORMER
VOLTAGE SELECTOR
110V
120-127V
220V
240V
120V
0V
TO AC POWER CORD
LIVE
NEUTRAL
POWER SUPPLY ASSY
FU1101
FU1102
T1AL250V
4558
Q1001
Q1002
Q1003
IC2201
TO FRONT ASSY FOR 50W CN7502
TO PWR.PRTEC ASSY CN7101
POWER IND ASSY
AWZ7223
FRONT ASSY
LIGHT
VOLUME
PHASE
IC2202
LAMP ASSY
AWK
LEVEL METER ASSY
IC1701
FILTER ASSY
ANP7024-C
4570
IC3551
TURN OVER
A
B
C
D
1
2
3
4
5
6

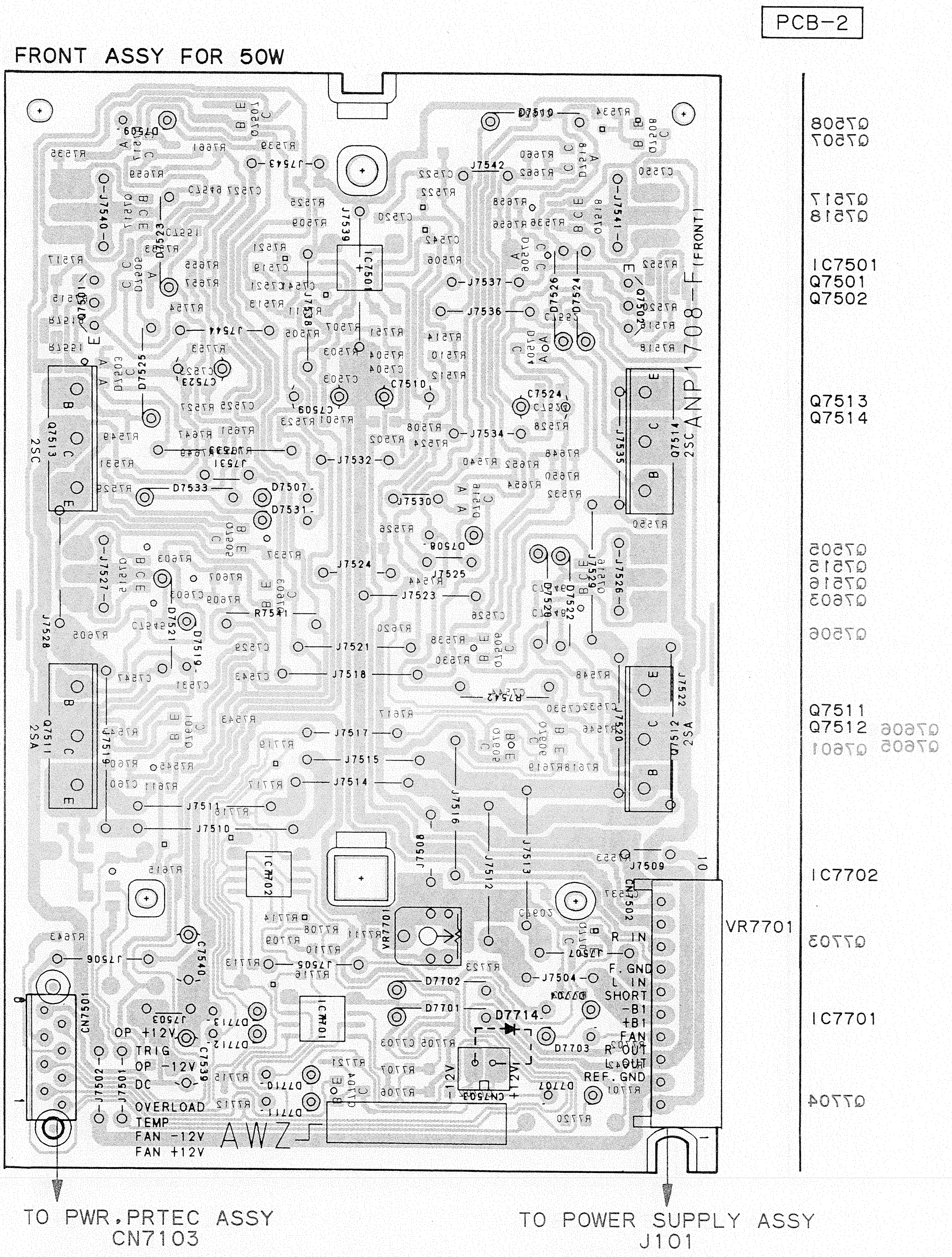
2.3.2 FRONT ASSEMBLY FOR 50W

- This diagram is viewed from the foil side.


PCB-2
FRONT ASSY FOR 50W
Q7508
Q7507
Q7517
Q7518
IC7501
Q7501
Q7502
Q7513
Q7514
Q7505
Q7515
Q7516
Q7603
Q7506
Q7511
Q7512
Q7601
Q7606
Q7605
IC7702
Q7703
IC7701
Q7704
VR7701
AWZ
TO POWER SUPPLY ASSY
J101
TO PWR.PRTEC ASSY
CN7103

2.3.2 FRONT ASSEMBLY FOR 50W

- This diagram is viewed from the mounted parts side.


PCB-2
FRONT ASSY FOR 50W
ANP1708-F (FRONT)
Q7513 2SC
Q7514 2SC
Q7511 2SA
Q7512 2SA
IC7501
IC7702
IC7701
VR7701
CN7501
CN7502
R IN
F.GND
L IN
SHORT
-B1
+B1
FAN
R OUT
L OUT
REF.GND
OP +12V
TRIG
OP -12V
DC
OVERLOAD
TEMP
FAN -12V
FAN +12V
AWZ
-12V
+12V
TO PWR.PRTEC ASSY
CN7103
TO POWER SUPPLY ASSY
J101
Q7508
Q7507
Q7517
Q7518
IC7501
Q7501
Q7502
Q7513
Q7514
Q7505
Q7515
Q7516
Q7603
Q7506
Q7511
Q7512
Q7606
Q7605
Q7601
IC7702
Q7703
IC7701
Q7704

A

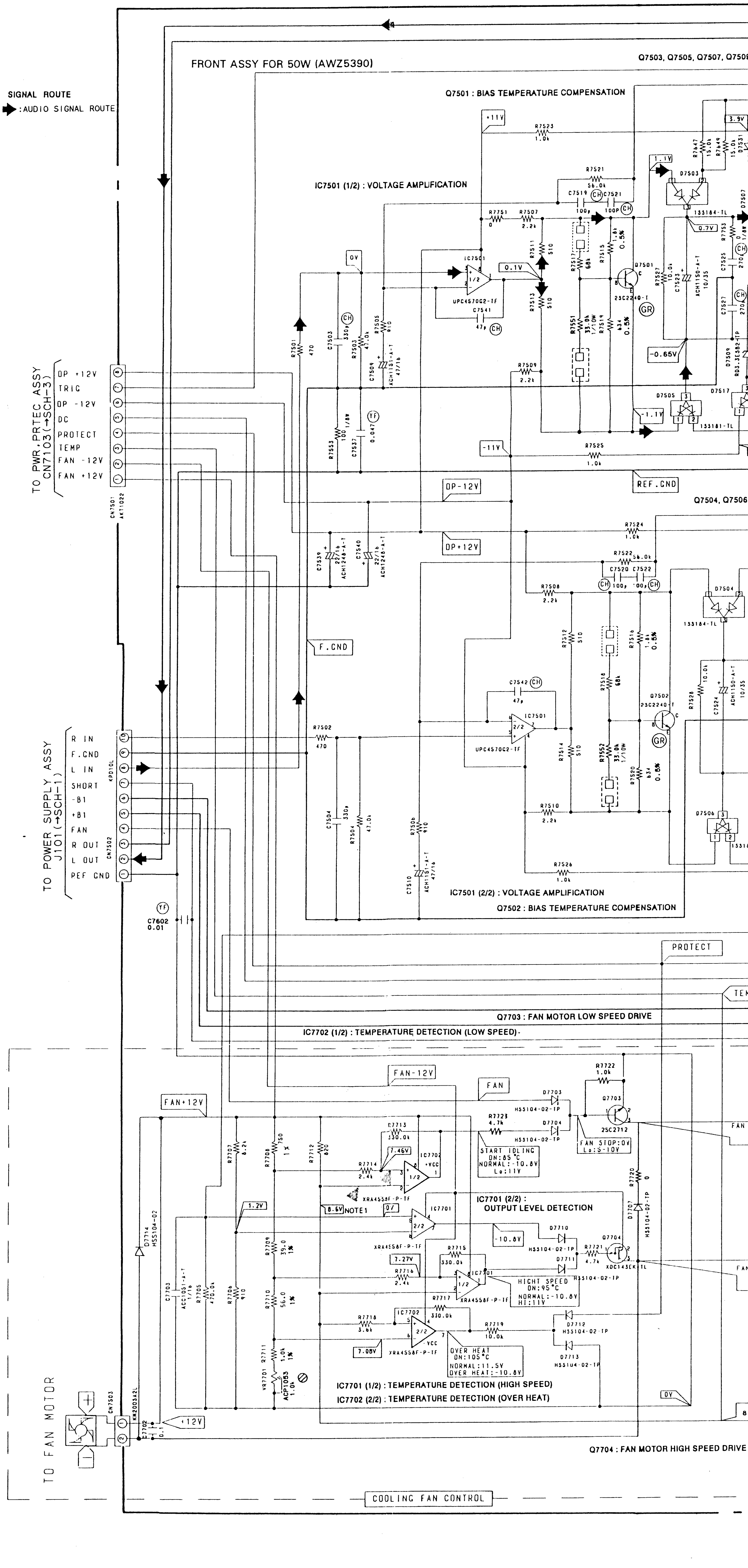
B

C

D

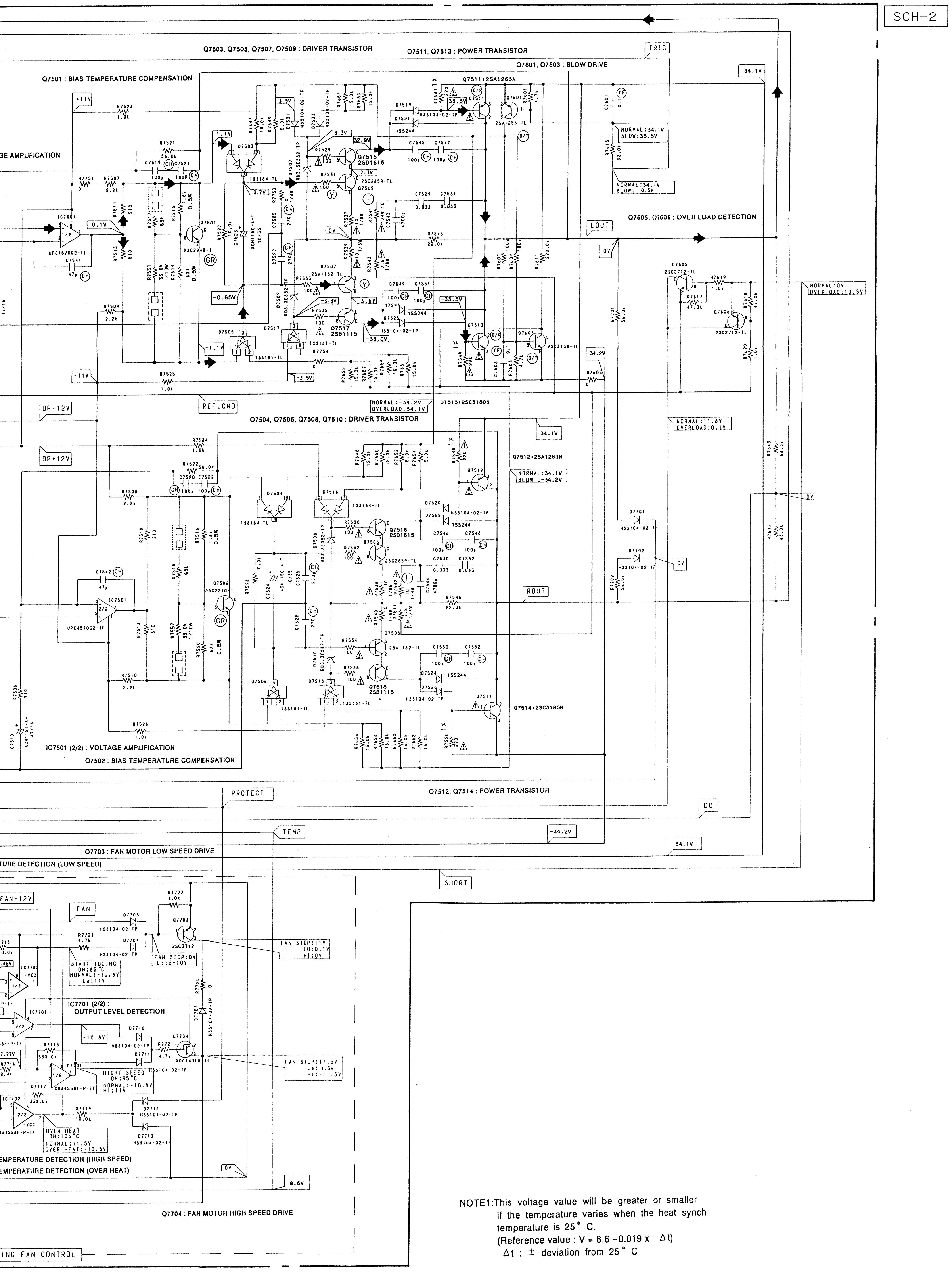
E

F

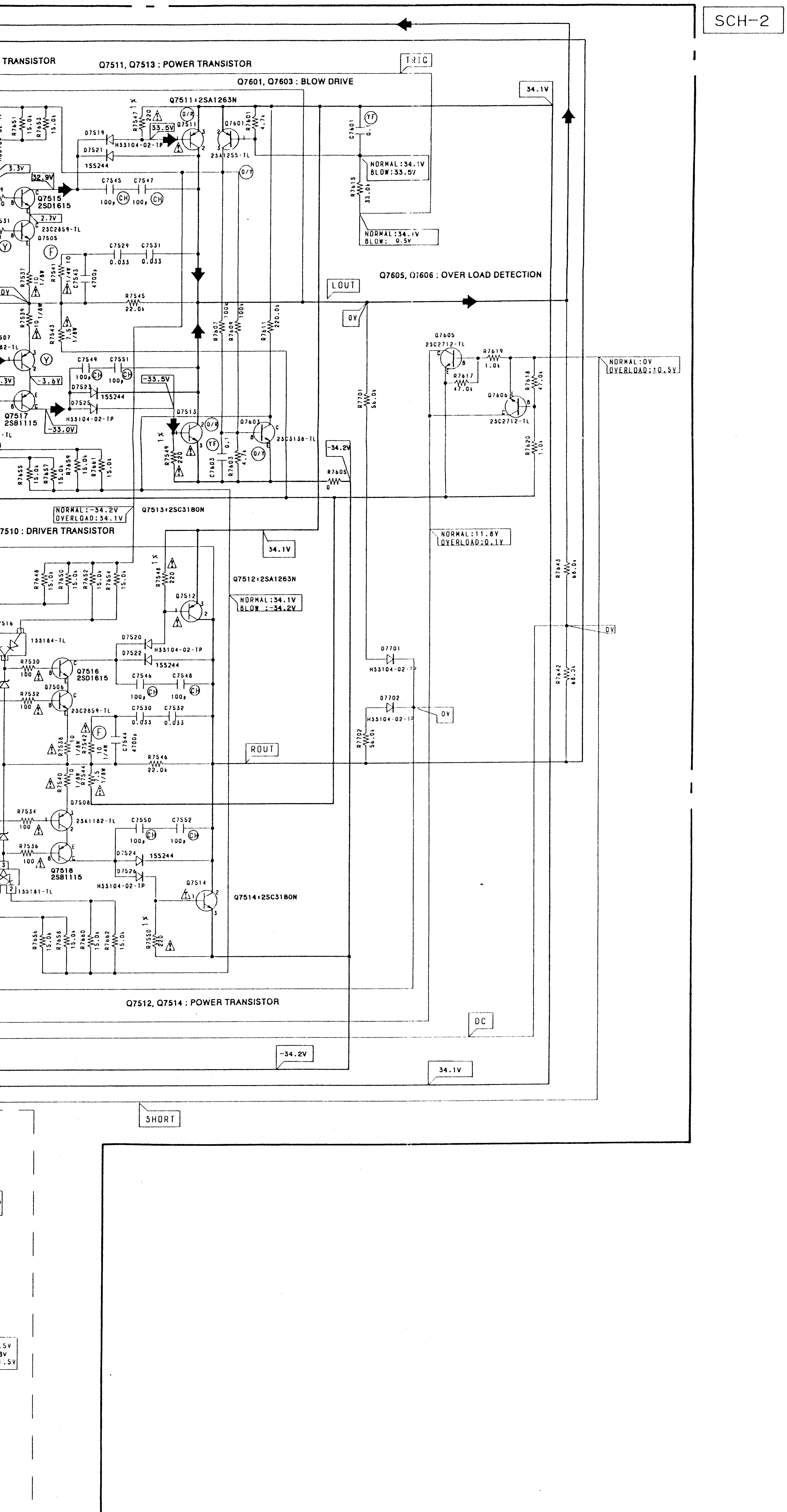

FRONT ASSY FOR 50W (AWZ5390)
SIGNAL ROUTE
:AUDIO SIGNAL ROUTE
Q7503, Q7505, Q7507, Q750
Q7501 : BIAS TEMPERATURE COMPENSATION
IC7501 (1/2) : VOLTAGE AMPLIFICATION
TO PWR.PRTEC ASSY CN7103(→SCH-3)
OP +12V
TRIG
OP -12V
DC
PROTECT
TEMP
FAN -12V
FAN +12V
CN7501 AKT1022
REF.GND
Q7504, Q7506
OP-12V
OP+12V
F.GND
TO POWER SUPPLY ASSY J101(→SCH-1)
R IN
F.GND
L IN
SHORT
-B1
+B1
FAN
R OUT
L OUT
REF GND
CN7502 KPD10L
IC7501 (2/2) : VOLTAGE AMPLIFICATION
Q7502 : BIAS TEMPERATURE COMPENSATION
PROTECT
C7602 0.01
Q7703 : FAN MOTOR LOW SPEED DRIVE
IC7702 (1/2) : TEMPERATURE DETECTION (LOW SPEED)
FAN-12V
FAN
FAN+12V
START IDLING ON:65°C NORMAL:-10.8V Lo:11V
FAN STOP:0V Lo:5-10V
NOTE1
IC7701 (2/2) : OUTPUT LEVEL DETECTION
HIGHT SPEED ON:95°C NORMAL:-10.8V HI:11V
OVER HEAT ON:105°C NORMAL:11.5V OVER HEAT:-10.8V
IC7701 (1/2) : TEMPERATURE DETECTION (HIGH SPEED)
IC7702 (2/2) : TEMPERATURE DETECTION (OVER HEAT)
TO FAN MOTOR
CN7503 KKR2003A2L
Q7704 : FAN MOTOR HIGH SPEED DRIVE
COOLING FAN CONTROL

SCH-2

FRONT ASSY FOR 50W


SCH-2
Q7503, Q7505, Q7507, Q7509 : DRIVER TRANSISTOR
Q7511, Q7513 : POWER TRANSISTOR
Q7601, Q7603 : BLOW DRIVE
Q7501 : BIAS TEMPERATURE COMPENSATION
GE AMPLIFICATION
Q7605, Q7606 : OVER LOAD DETECTION
Q7511:2SA1263N
Q7515 2SD1615
Q7517 2SB1115
Q7513:2SC3180N
Q7504, Q7506, Q7508, Q7510 : DRIVER TRANSISTOR
Q7512:2SA1263N
Q7516 2SD1615
Q7518 2SB1115
Q7514:2SC3180N
IC7501 (2/2) : VOLTAGE AMPLIFICATION
Q7502 : BIAS TEMPERATURE COMPENSATION
Q7512, Q7514 : POWER TRANSISTOR
Q7703 : FAN MOTOR LOW SPEED DRIVE
TURE DETECTION (LOW SPEED)
IC7701 (2/2) : OUTPUT LEVEL DETECTION
EMPERATURE DETECTION (HIGH SPEED)
EMPERATURE DETECTION (OVER HEAT)
Q7704 : FAN MOTOR HIGH SPEED DRIVE
ING FAN CONTROL
TRIG
LOUT
ROUT
REF.GND
OP-12V
OP+12V
PROTECT
TEMP
SHORT
DC
FAN-12V
FAN
34.1V
-34.2V
8.6V
0V
NORMAL:34.1V BLOW:33.5V
NORMAL:34.1V BLOW: 0.5V
NORMAL:0V OVERLOAD:-0.5V
NORMAL:-34.2V OVERLOAD:34.1V
NORMAL:11.8V OVERLOAD:0.1V
NORMAL:34.1V BLOW :-34.2V
FAN STOP:11V LO:0.1V HI:0V
FAN STOP:0V Lo:-10V
START IDLING ON:85°C NORMAL:-10.8V Lo:11V
HICHT SPEED ON:95°C NORMAL:-10.8V HI:11V
OVER HEAT ON:105°C NORMAL:11.5V OVER HEAT:-10.8V
FAN STOP:11.5V Lo: 1.3V Hi:-11.5V
FRON

NOTE1:This voltage value will be greater or smaller
if the temperature varies when the heat synch
temperature is 25° C.
(Reference value : V = 8.6 -0.019 x Δt)
Δt : ± deviation from 25° C

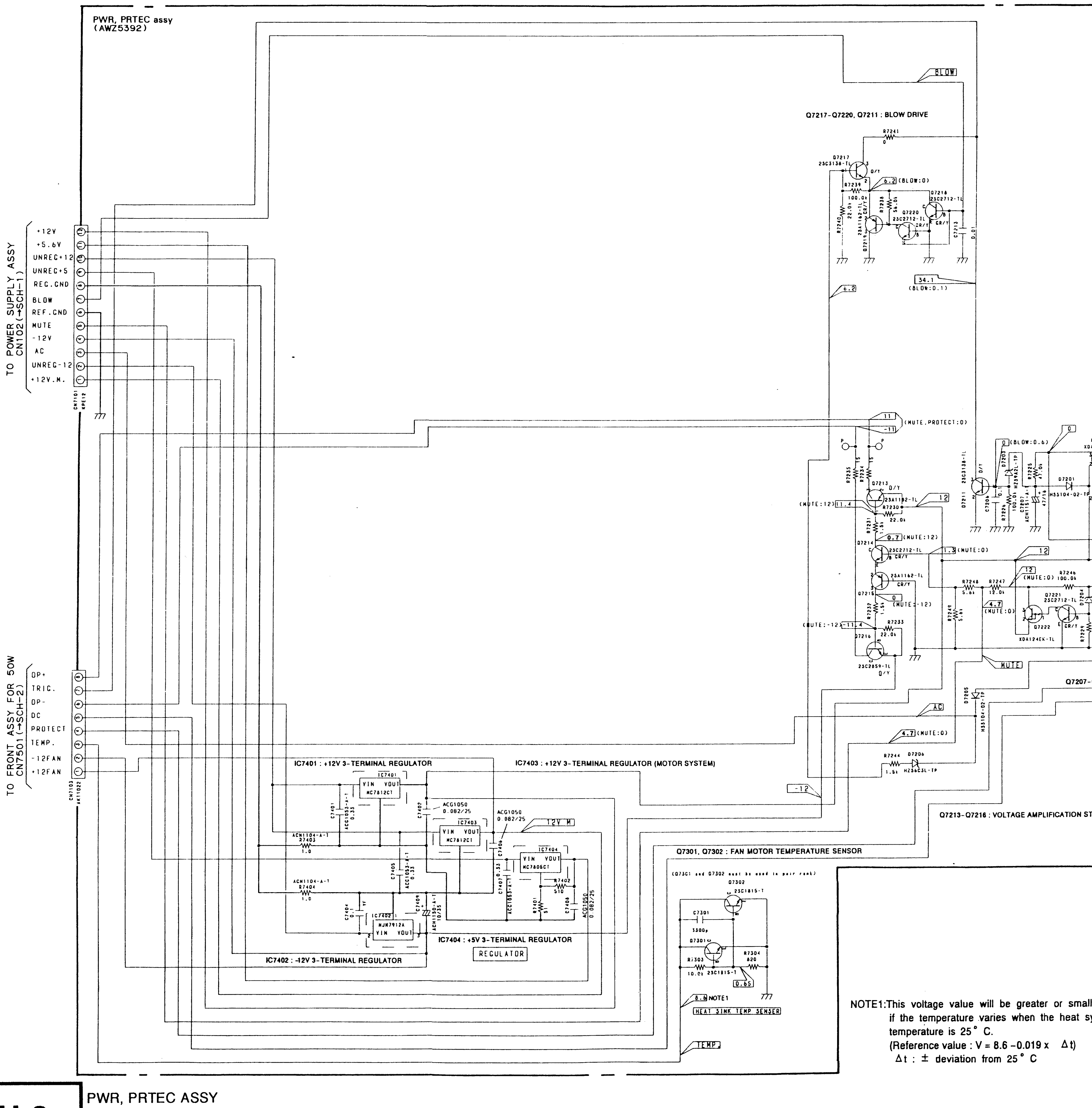

SCH-2
TRANSISTOR
Q7511, Q7513 : POWER TRANSISTOR
Q7601, Q7603 : BLOW DRIVE
TRIG
34.1V
Q7511:2SA1263N
33.5V
D7519
D7521
HS3104-02-TP
1SS244
Q7601
2SA1255-TL
C7601
NORMAL:34.1V
BLOW:33.5V
R7615
33.0k
NORMAL:34.1V
BLOW: 0.5V
3.3V
32.9V
Q7515
2SD1615
2.7V
2SC2859-TL
Q7505
C7545
C7547
C7529
C7531
0.033
R7541
R7543
R7545
22.0k
LOUT
0V
Q7605, Q7606 : OVER LOAD DETECTION
Q7605
2SC2712-TL
R7619
1.0k
R7617
47.0k
R7618
47.0k
Q7606
2SC2712-TL
R7620
1.0k
NORMAL:0V
OVERLOAD:+0.5V
R7701
56.0k
C7549
C7551
-3.6V
-33.5V
D7523
D7525
1SS244
HS3104-02-TP
Q7517
2SB1115
-33.0V
Q7513
Q7603
2SC3136-TL
R7549
220
C7603
R7603
-34.2V
R7605
R7655
R7657
R7659
R7661
NORMAL:-34.2V
OVERLOAD:34.1V
Q7513:2SC3180N
7510 : DRIVER TRANSISTOR
34.1V
NORMAL:11.8V
OVERLOAD:0.1V
R7643
68.0k
R7648
R7650
R7652
R7654
R7548
220
Q7512:2SA1263N
Q7512
NORMAL:34.1V
BLOW :-34.2V
0V
D7520
D7522
HS3104-02-TP
1SS244
1SS184-TL
R7530
100
Q7516
2SD1615
Q7506
R7532
2SC2859-TL
C7546
C7548
C7530
C7532
0.033
D7701
HS3104-02-TP
D7702
HS3104-02-TP
0V
R7642
68.0k
R7702
56.0k
R7538
R7542
C7544
4700p
R7546
22.0k
ROUT
R7540
R7544
Q7508
R7534
2SA1182-TL
C7550
C7552
D7524
1SS244
R7536
Q7518
2SB1115
D7526
HS3104-02-TP
Q7514
Q7514:2SC3180N
1SS181-TL
R7656
R7658
R7660
R7662
R7550
Q7512, Q7514 : POWER TRANSISTOR
DC
-34.2V
34.1V
SHORT

NOTE1:This voltage value will be greater or smaller
if the temperature varies when the heat synch
temperature is 25° C.
(Reference value : V = 8.6 −0.019 x Δt)
Δt : ± deviation from 25° C

FRONT ASSY FOR 50W

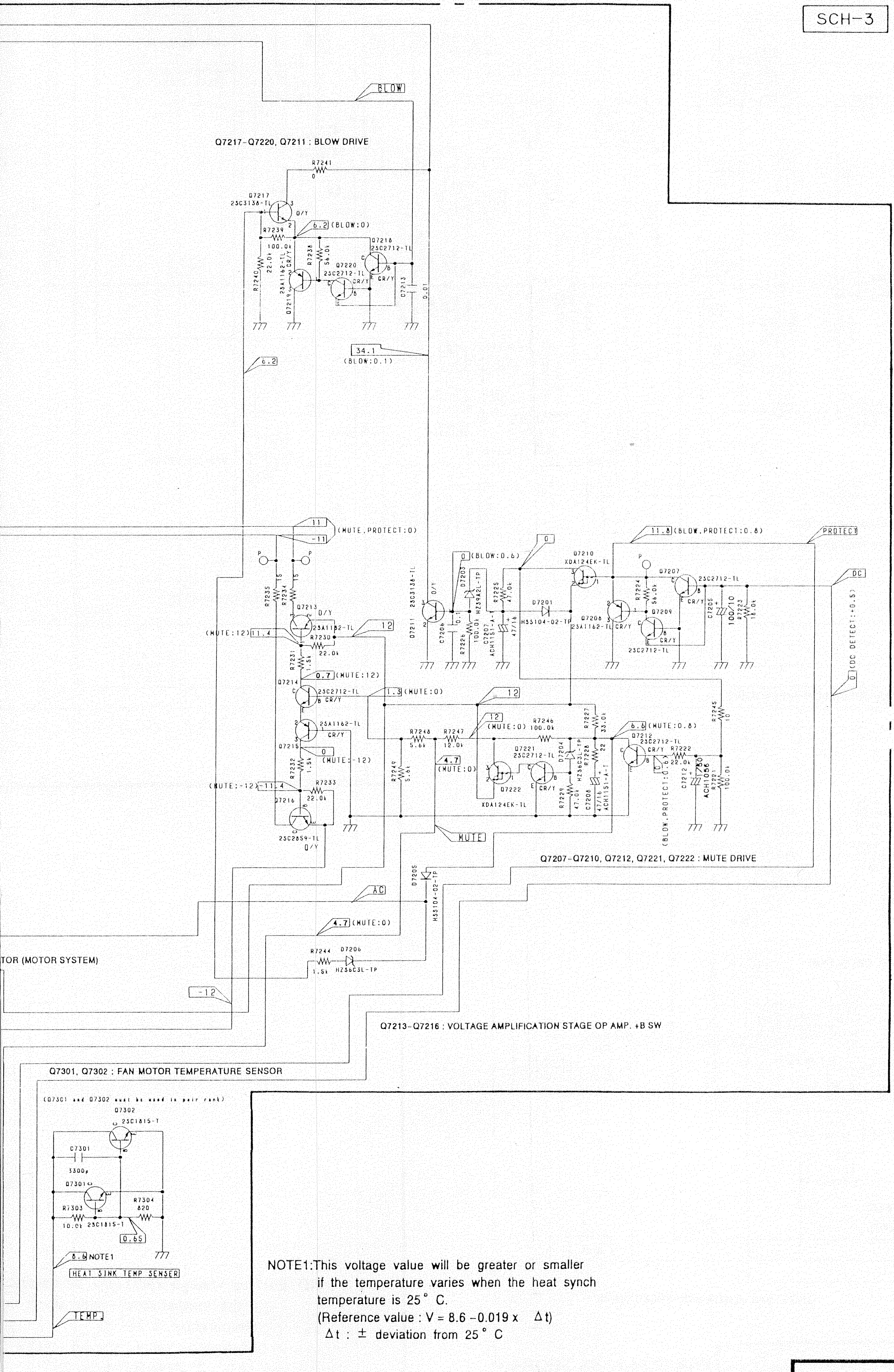
SCH-2

2.3.3 PWR, PRTEC ASSEMBLY


PWR, PRTEC assy
(AWZ5392)
TO POWER SUPPLY ASSY
CN102(→SCH-1)
+12V
+5.6V
UNREG+12
UNREG+5
REG.GND
BLOW
REF.GND
MUTE
-12V
AC
UNREG-12
+12V.M.
CN7101
KPE12
TO FRONT ASSY FOR 50W
CN7501(→SCH-2)
OP+
TRIG.
OP-
DC
PROTECT
TEMP.
-12FAN
+12FAN
CN7103
AKM1022
BLOW
Q7217-Q7220, Q7211 : BLOW DRIVE
R7241
0
Q7217
2SC3138-TL
O/Y
6.2 (BLOW:0)
R7239
100.0k
R7240
22.0k
2SA1162-TL
GR/Y
Q7219
R7238
56.0k
Q7220
2SC2712-TL
GR/Y
Q7218
2SC2712-TL
GR/Y
C7213
0.01
34.1
(BLOW:0.1)
6.2
11
-11
(MUTE,PROTECT:0)
R7235
R7234
15
Q7213
O/Y
2SA1162-TL
(MUTE:12) 11.4
R7230
22.0k
12
R7231
1.5k
0.7 (MUTE:12)
Q7214
2SC2712-TL
GR/Y
1.3 (MUTE:0)
2SA1162-TL
GR/Y
Q7215
0
(MUTE:-12)
R7232
1.5k
(MUTE:-12) -11.4
R7233
22.0k
Q7216
2SC2859-TL
O/Y
Q7211
2SC3138-TL
O/Y
C7206
0.1
D7203
HZS9A2L-TP
R7226
100.0k
0 (BLOW:0.6)
R7225
47.0k
C7207
ACH1151-A-T
47/16
0
D7201
HSS104-02-TP
12
R7248
5.6k
R7247
12.0k
12
(MUTE:0)
R7246
100.0k
R7249
5.6k
4.7
(MUTE:0)
Q7221
2SC2712-TL
GR/Y
Q7222
XDA124EK-TL
D7204
R7229
MUTE
Q7207-
D7205
HSS104-02-TP
AC
4.7 (MUTE:0)
R7244
1.5k
D7206
HZS6C3L-TP
-12
Q7213-Q7216 : VOLTAGE AMPLIFICATION ST
IC7401 : +12V 3-TERMINAL REGULATOR
IC7401
VIN VOUT
MC7812CT
C7401
ACG1053-A-T
0.33
C7402
ACG1050
0.082/25
ACN1104-A-T
R7403
1.0
IC7403 : +12V 3-TERMINAL REGULATOR (MOTOR SYSTEM)
IC7403
VIN VOUT
MC7812CT
ACG1050
0.082/25
C7406
12V M
IC7404
VIN VOUT
MC7805CT
C7405
ACG1053-A-T
0.33
C7407
0.33
ACG1053-A-T
R7402
510
R7401
51
C7408
ACG1050
0.082/25
ACN1104-A-T
R7404
1.0
C7404
0.1
YF
IC7402
NJM7912A
VIN VOUT
C7409
ACH1150-A-T
10/35
IC7404 : +5V 3-TERMINAL REGULATOR
REGULATOR
IC7402 : -12V 3-TERMINAL REGULATOR
Q7301, Q7302 : FAN MOTOR TEMPERATURE SENSOR
(Q7301 and Q7302 must be used in pair rank)
Q7302
2SC1815-T
C7301
3300p
Q7301
R7303
10.0k
2SC1815-T
R7304
820
0.65
8.6 NOTE1
HEAT SINK TEMP SENSER
TEMP

NOTE1:This voltage value will be greater or small
if the temperature varies when the heat sy
temperature is 25° C.
(Reference value : V = 8.6 -0.019 x Δt)
Δt : ± deviation from 25° C

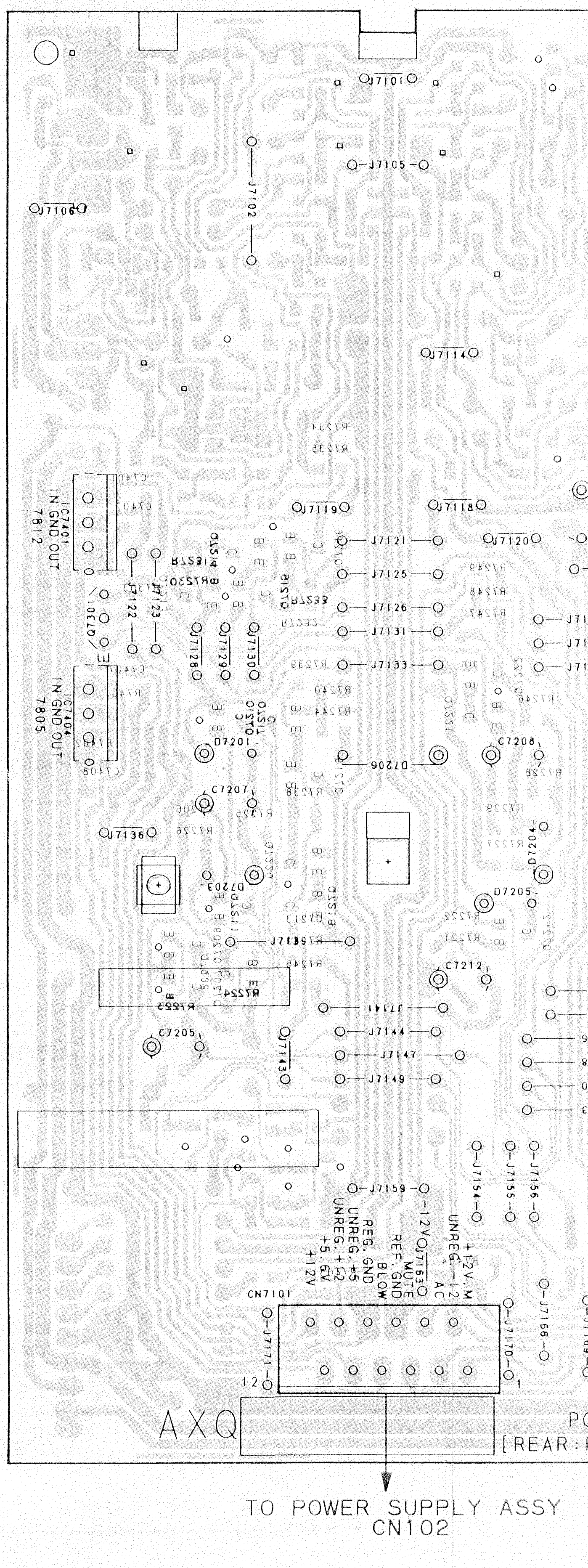
SCH-3 PWR, PRTEC ASSY


SCH-3
BLOW
Q7217-Q7220, Q7211 : BLOW DRIVE
6.2 (BLOW:0)
34.1 (BLOW:0.1)
11 (MUTE, PROTECT:0)
11.8 (BLOW, PROTECT:0.8)
PROTECT
DC
DC DETECT:-0.5
MUTE
Q7207-Q7210, Q7212, Q7221, Q7222 : MUTE DRIVE
AC
4.7 (MUTE:0)
TOR (MOTOR SYSTEM)
-12
Q7213-Q7216 : VOLTAGE AMPLIFICATION STAGE OP AMP. +B SW
Q7301, Q7302 : FAN MOTOR TEMPERATURE SENSOR
8.9 NOTE1
HEAT SINK TEMP SENSER
TEMP

NOTE1:This voltage value will be greater or smaller
if the temperature varies when the heat synch
temperature is 25° C.
(Reference value : V = 8.6 −0.019 x Δt)
Δt : ± deviation from 25° C

● This diagram is viewed from the

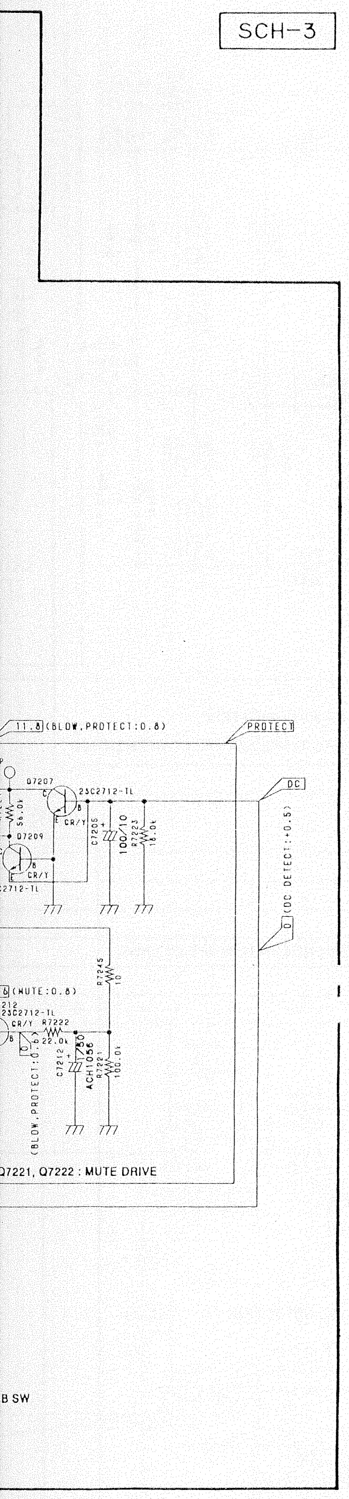
PWR.PRTEC ASSY


J7105
J7102
J7101
J7106
J7114
IC7401 7812 IN GND OUT
IC7404 7805 IN GND OUT
J7119
J7118
J7120
J7121
J7125
J7126
J7131
J7133
D7201
D7206
C7208
C7207
J7136
D7203
D7205
C7212
C7205
J7144
J7147
J7149
J7159
J7154
J7155
J7156
+12V
+5.6V
UNREG.+12
UNREG.+5
REG. GND
REF GND
BLOW
MUTE
-12V
UNREG.-12
AC
+12V.M
CN7101
AXQ
J7166
J7170
J7171
[REAR

TO POWER SUPPLY ASSY
CN102

PWR, PRTEC ASSY **SCH-3**

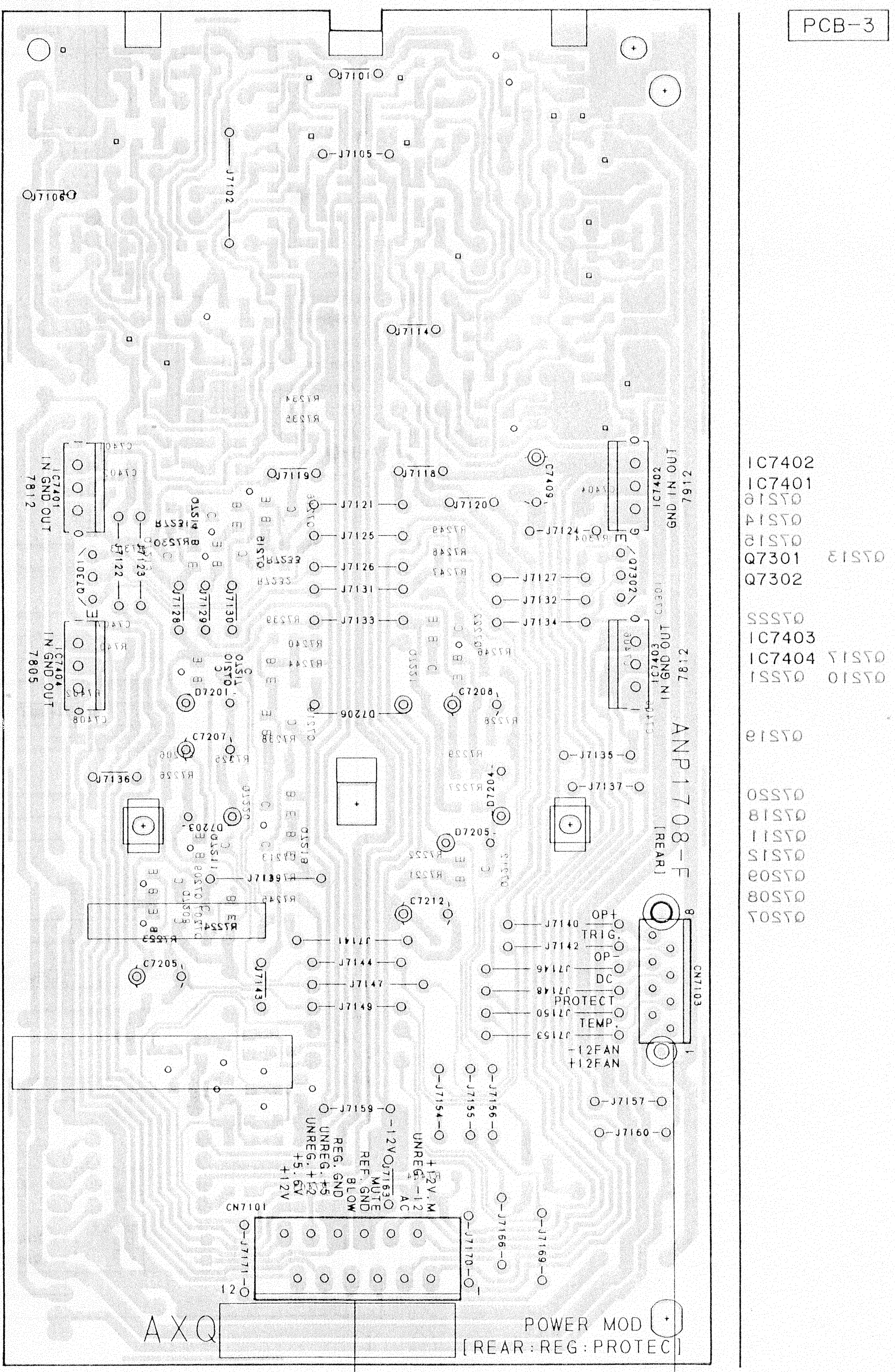
SCH-3


PROTECT
DC
Q7207
2SC2712-TL
Q7209
(BLOW,PROTECT:0.8)
(DC DETECT:-0.5)
(MUTE:0.8)
Q7221, Q7222 : MUTE DRIVE
B SW

● This diagram is viewed from the mounted parts side.

PWR.PRTEC ASSY

PCB-3


IC7402
IC7401
Q7301
Q7302
IC7403
IC7404
7812
7805
IN GND OUT
ANP1708-F
[REAR]
CN7103
OP+
TRIG.
OP-
DC
PROTECT
TEMP
-12FAN
+12FAN
CN7101
+12V
+5.6V
UNREG.+5
UNREG.+12
REG.GND
REF.GND
BLOW
MUTE
-12V
+12V.M
UNREG.-12
AC
AXQ
POWER MOD
[REAR:REG:PROTEC]

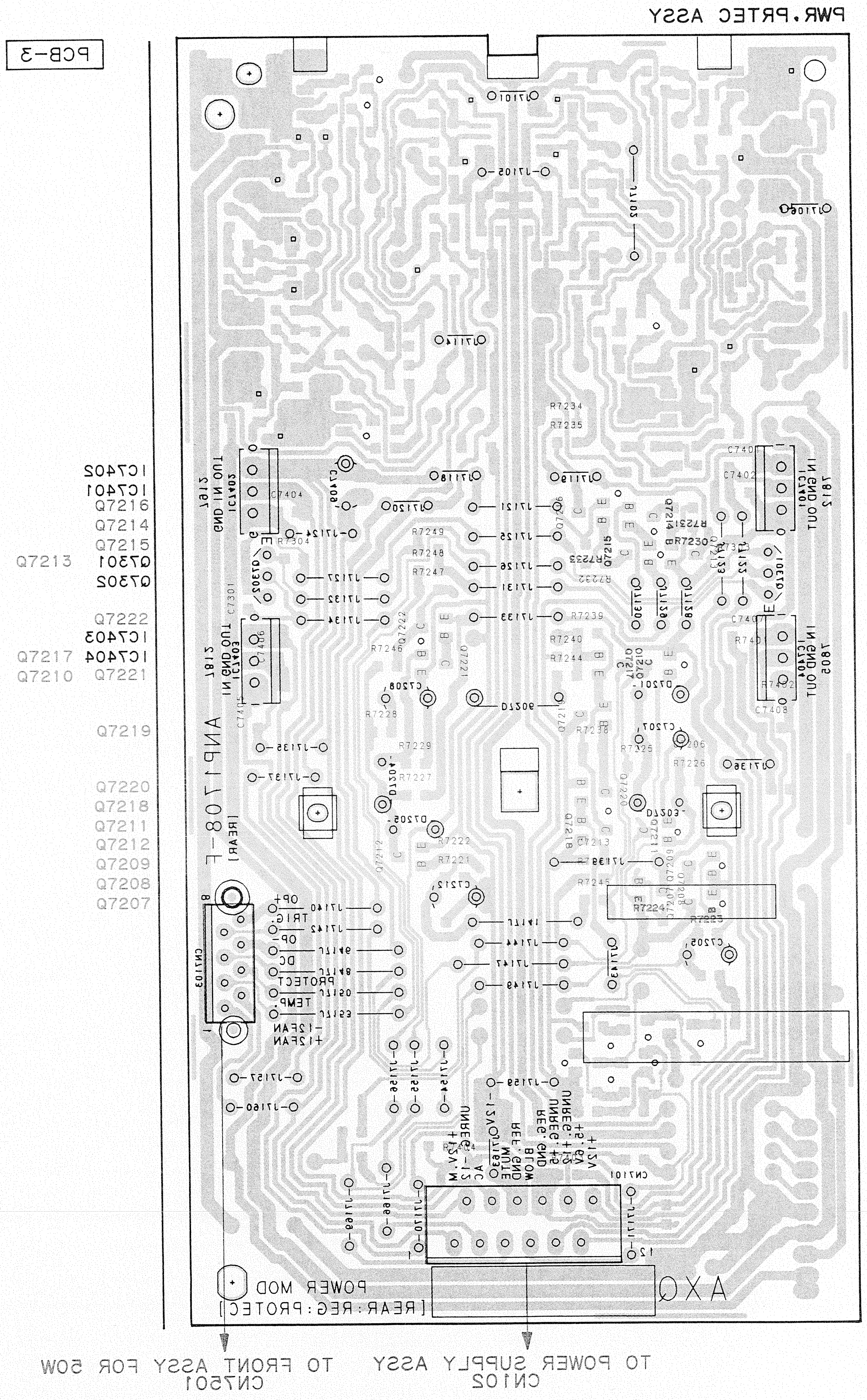
TO POWER SUPPLY ASSY
CN102

TO FRONT ASSY FOR 50W
CN7501

WR, PRTEC ASSY

SCH-3

- This diagram is viewed from the foil side.


PWR.PRTEC ASSY
PCB-3
IC7402
IC7401
Q7216
Q7214
Q7215
Q7213
Q7301
Q7302
Q7222
IC7403
Q7217
IC7404
Q7210
Q7221
Q7219
Q7220
Q7218
Q7211
Q7212
Q7209
Q7208
Q7207
ANP1708-F
POWER MOD [REAR:REG:PROTEC]
AXO
TO FRONT ASSY FOR 50W
CN7501
TO POWER SUPPLY ASSY
CN102

A B C D